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Spatial Parameters in Therapeutic Spaces: Design of a Residential Treatment Facility for Eating Disorder Patients

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Acknowledgements

This thesis was not a singular effort.

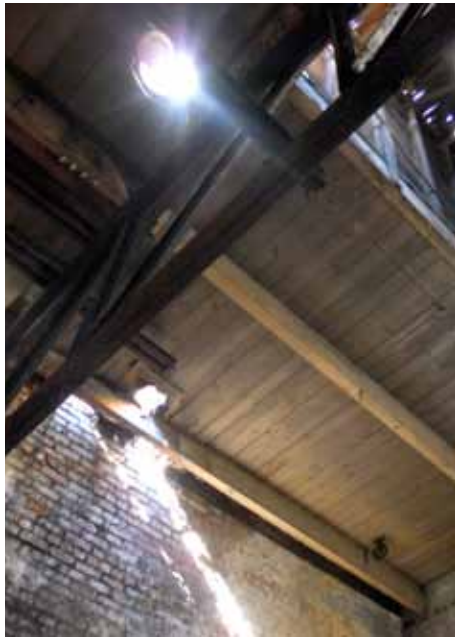
It simply would not exist without

the love, support and consistent commitment of my family.
Mom, Dad, Randy, Stephanie, and Joe. Thank you.

the love and dedication of my Richmond family.
Wids and pancake breakfasts. Thank you.
Community group: you brought sanity. Thank you.

VCU professors: you taught me not only to be a better designer, but a better person.

Class of 2011. You taught me many things (some I never wished to know) I love you. dearly.



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Design Manifesto

Interior Spaces critically impact the health and holistic quality of our lives.

Therefore, I believe the following to be true of design:

Design **awakens** us from the mundane; drawing our attention to the inventive and imaginative nature of our world. Interior spaces move us out of two-dimensional living, where we settle for an undifferentiated version of ourselves, into three-dimensional awareness that reminds us of who we are and what makes us come alive.

Design **engages** each of the senses through authentic and honest construction, creating a distinct and tangible connection between us and our environment. This connection enhances our sense of self and enriches our relationships.

Sarah Beth Basinger

Overview
Employing spatial and sensory parameters as design drivers for therapeutic spaces

Statement
With the increasing recognition of eating disorders and their treatment with a dual approach of both psychological and behavioral methods, therapeutic spaces present an opportunity to create a new interior environment. This research and subsequent design solution focuses on the development of a new interior type through the investigation of the spatial and sensory qualities that impact the patient's connections with self and others within a variety of therapeutic settings.

Questions
How important is the interior environment in a therapeutic setting?

How can the interior environment be designed to positively affect and impact the quality and effectiveness of the therapeutic process?

What are key parameters that must be addressed in the design of a therapeutic facility to achieve this level and quality of care?

Abstract
Can the built environment positively influence the treatment of an eating disorder? Does the built environment play a role in the quality of care, the rehabilitation process and the lasting affects of treatment in eating disorders and if so, what role does it play? What are the important parameters to consider in designing such a space? Currently there are few facilities designed specifically for the treatment of this disorder. Of those facilities, there is a lack of research regarding the effects of the built environment. Therefore, the process of answering these questions must begin by assessing parameters in architectural precedents that have a strong, therapeutic environment. After studying several therapeutic environments, certain parameters emerged as common elements in each project. Therefore, the following parameters were chosen and used to systematize research: spatial triad (group, therapeutic, and solitude spaces), connection between interior and exterior, natural light, and sensory qualities (acoustic intimacy, space and scent, shape and touch, skeleton and muscle). While several architectural precedents exist; La Tourette, a monastery near Lyon, France designed by architect Le Corbusier, became the most significant structure studied. Research of this monastery included a two night stay with complete access to the facility. Spending full days in the monastery provided an opportunity to absorb the therapeutic qualities of the space. After analyzing common parameters across several chosen architectural precedents, a design solution was developed as a means to check the analysis.

The solution involved re-purposing a warehouse building in an urban setting. Spatial connections and current treatment research drove the conceptual process which included diagramming, model building, and sketching. Key criteria for spatial development involved privacy, security, and circulation. The final design incorporated each precedent, creating an interior type that addresses the specific needs of a residential eating disorder clinic.

Program
Believing that the interior environment plays a critical role in the health and holistic quality of life, I set out to design a mental health facility. The facility is programmed as a residential treatment facility for female eating disorder patients. Four parameters were developed and acted as guides for the design development. The result is an interior environment that would aid in the rehabilitation process and the lasting affects of treatment for this socially prominent disorder.

The program included the following:

Parameter 01 Spatial Triad:
group, therapeutic, and solitude spaces

a. group

family room
outdoor space
circulation

b. therapeutic

group therapy
individual therapy
art therapy
recreational therapy
family/group therapy

c. solitude

d. support spaces

m.d., dietician, and therapist offices
administration
residential restrooms
guest/family restrooms
residential dining
family dining
nurse station
exam room
classroom

Parameter 02 Connection between interior and exterior

a. access points to outdoor patio
b. views to exterior
c. openings for airflow

Parameter 03 Natural Light

a. indoor courtyard/canyon visual time cycle
b. controlled, dim light in therapeutic rooms
c. natural light in every room

Parameter 04 Sensory qualities: acoustic intimacy; space and scent; shape and touch; skeleton and muscle

a. textiles/materiality
b. sound proofed rooms
c. fresh airflow
d. elevation change signifying therapy

Basic Area Requirements

Family Room	400-500 Sq Ft
Group Therapy Space	250 Sq Ft
Individual Therapy Rooms	150 Sq Ft (per room)
Professional Offices	150 Sq Ft (per room)
Art Therapy Room	400-500 Sq Ft
Recreation Space	300 Sq Ft
Outdoor Space	400 - 500 Sq Ft
Nurse's Station	250 Sq Ft
Exam Room	150 Sq Ft
Secure Medical Space	150 Sq Ft
Classroom	250 Sq Ft
Dining Room	250 Sq Ft
Family Therapy/Dining	250 Sq Ft

Use Group: I1
Construction Type: IIA

Occupancy Loads
Function of Space: Inpatient Treatment Areas
Floor Area in Sq. Ft. Per Occupant: 240 Gross

Research Influencing Design Decisions: Support for Chosen Design Parameters

Parameter 01 Spatial Triad: group, therapeutic, and solitude spaces

A spatial triad refers to three distinct types of spaces within the facility with separate functions serving specific therapeutic needs. First, group space represents "down time" and centers around activities that are non-therapeutic, giving residents the opportunity to relax and take a break from the internal and emotional work therapy requires. This group space is meant for playing a game, putting a puzzle together, or having a laid back conversation. There can be large group interaction or a few individuals having a quiet conversation. While the term "group" can imply a numerical value, group space is not about a specific number of people. Second, therapeutic spaces are designed for several different types of therapy (group, individual, art, recreation, etc.,) and are meant to be spaces where the "work" happens. These are the places where residents must work to face issues and confront their illness. Finally, solitude space provides a moment for residents to privately and internally re-group. This solitude space is designed for reflection, meditation and processing. Because residents cannot be left alone due to safety concerns, these spaces are designed to give residents the feel of being alone while remaining fully visible to staff.

Each of these spatial types was designed with research influencing design decisions. Due to the nature of an eating disorder and the disorder's treatment approach, a facility with a strong residential atmosphere is required. Therefore having a living room or family space at the center of all activities is necessary. This centrally located space for social interaction creates an atmosphere where rest can happen and thus therapy can occur (Boles, 98). Based on research, therapeutic spaces in which focused conversation occurs require twelve important considerations: location, image, degree of visibility, proximity of rest room, privacy, easy-to-read clocks, entrance and exists, furniture, lighting, views, plants, and artwork (Hany & Miwa, 485). Research also indicates that ideal interpersonal distance between counselor and client is 50" (Berstein, Dumont, & Lecomte). A feeling of connection to the nurses' station is important

in order to make the staff feel accessible rather than distant. This accessibility relates back to studies showing a healthy, close relationship between staff and residents as a necessary factor in the healing process (Schweitzer Et Al., 78).

Parameter 02 Connection between interior and exterior

A connection to the exterior environment refers to views to the exterior and operable windows, both of which have a positive affect on healing environments. Views of nature and fresh airflow have been linked to a reduction of stress and anxiety and improvement of overall health (Schweitzer Et Al., 75). According to Judith Peerwag, windows are a key element in creating restorative environments (McKahan).

Parameter 03 Natural light

Countless studies have proven the effectiveness of natural light in healing environments. A lack of natural light is linked to lethargy, depression, increased rates of suicide and, SAD while ample amounts of natural light are linked to numerous positive outcomes (McKahan). It is important to recognize the effects of natural light specifically related to mental health settings. In therapeutic spaces dim lighting has proven important, therefore therapeutic spaces should not be flooded with light, but rather have an atmosphere of controlled natural light (Hanyu & Miwa, 484). Current research also indicates the effectiveness of light therapy in the treatment of eating disorders. Because the body's circadian rhythms are regulated primarily by light and food intake, and in this particular mental health disorder food intake is irregular, researchers are studying the effectiveness of re-regulating the body's circadian rhythms through light therapy. Thus it is hypothesized that light therapy can improve the client's ability to normalize eating patterns (Yamamotová Et Al.). Case studies continue to explore this idea, yet more research is needed (Ash Et Al.).

Parameter 04 Sensory qualities: acoustic intimacy; space and scent; shape and touch; skeleton and muscle

Involving all of the senses in design (rather than merely designing with sight in mind) creates a stronger connection to place. If the environment is to have an affect on healing, I hypothesize that the stronger the sensual connection to the built environment the greater the healing affect. Golledge and Stimson refer to this process by recognizing that our perception or mental representation of object or environment begins with a sensation or senses and is then processed through the mind. (Malnar & Vodvarka, p 51). Senses begin the act of understanding place; therefore I believe great importance should be assigned to senses in connecting residents to their healing environment.

01 02

03 04

Contextual Case Studies

Observations of contextual case studies focus on the following parameters:

Parameter 01 Spatial triad: group, therapeutic, and solitude spaces

Parameter 02 Connection between interior and exterior

Parameter 03 Natural light

Parameter 04 Sensory qualities: acoustic intimacy; space and scent; shape and touch; skeleton and muscle

“Every touching experience of architecture is multi-sensory; qualities of matter, space & scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle.”

Juhani Pallasmaa · An Architecture of the Seven Senses

01 Salk Institute (15.1)
02 Ronchamp
03 La Tourette
04 Vitra Conference Center

The Convent of La Tourette, Le Corbusier Lyon, France 1957-1960

La Tourette was created as a monastery for the monks of the Dominican order. The building sits upon a steep hill overlooking the French country side. Le Corbusier created La Tourette as a sanctuary, a place where the Dominican monks could reflect, meditate, and study. Le Corbusier mastered controlling daylight and choreographing a unique, purposeful experience. Today it is used by ten monks, a drastically smaller number than originally intended due to low numbers of monks in the Dominican order. The unused portion of the monastery is currently rented out to individuals or groups as a retreat.

“Space and light and order. Those are the things that men need just as much as they need bread or a place to sleep.”

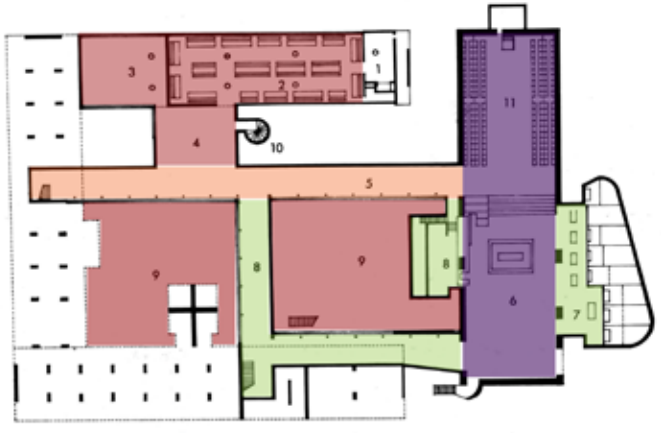
Le Corbusier

Left: Altars in Crypt
Right: Central Courtyard

Parameter 01 Spatial triad: group, semi-private, and private spaces and effective connections between them

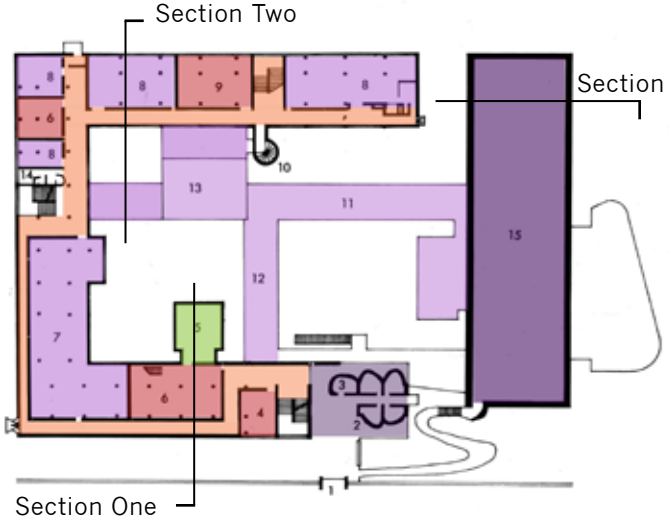
Second Floor Plan

1 Pantry
2 Refectory
3 Chapter House
4 Court
5 Main Corridor
6 High Altar
7 Side Chapel
8 Side Altars and Sacristy
9 Open Court
10 Stair to Court
11 Chapel



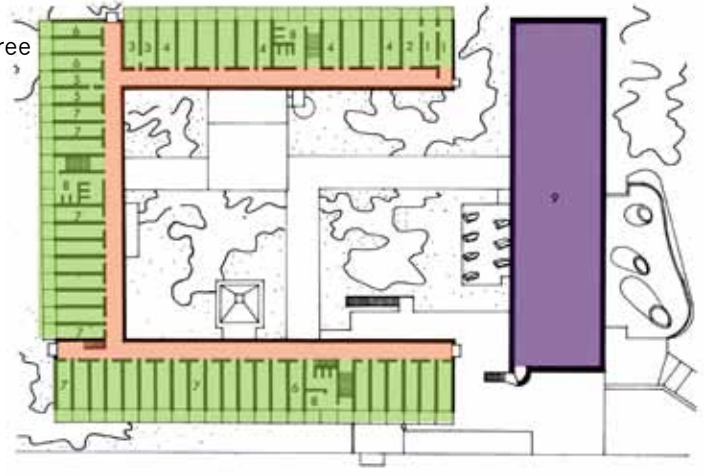
Third Floor Plan

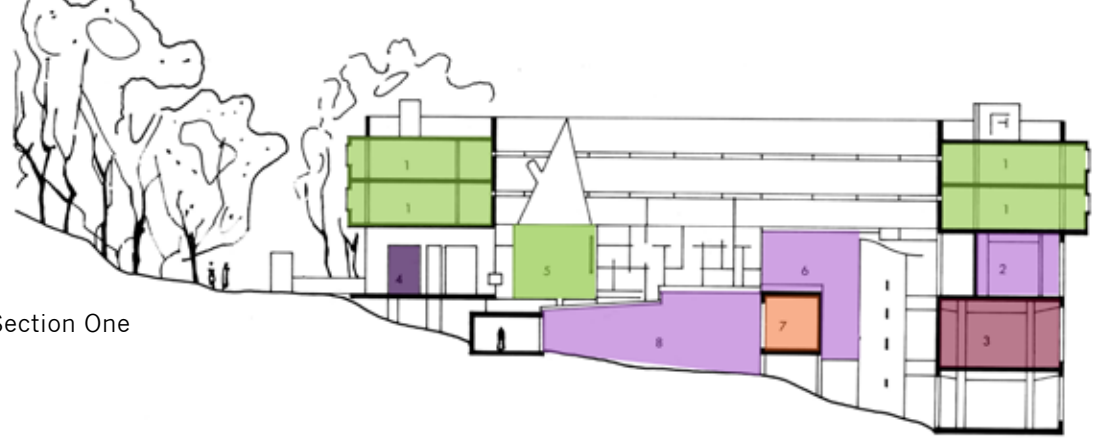
1 Entrance Gate
2 Visitor's Room
3 Porter
4 Convert's Room
5 Private Chapel
6 Novice's Room
7 Library
8 Classrooms
9 Fathers' Room
10 Stair to Court
11 Main Corridor
12 Subsidiary Corridor
13 Court
14 WC's
15 Chapel



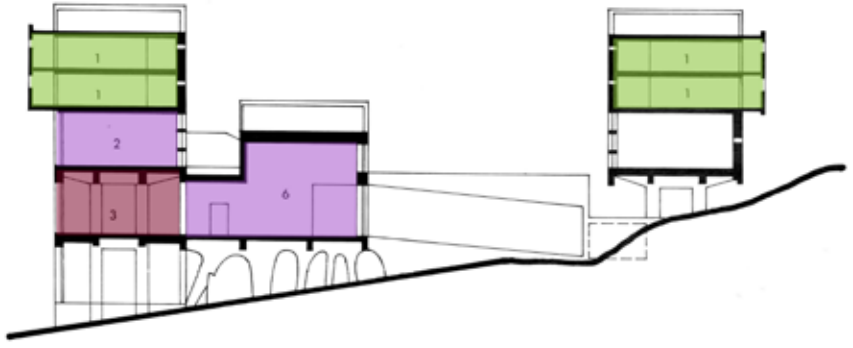
Fourth Floor Plan

1 Sick-bay
2 Surgery
3 Hospice
4 Instructors
5 Master of novices
6 Novices' cells
7 Lay brothers
8 WC's
9 Chapel





Section One



1 Cells
2 Classrooms
3 Refectory
4 Visitors room
5 Private chapel
6 Court
7 Main corridor
8 Open court

Section Two

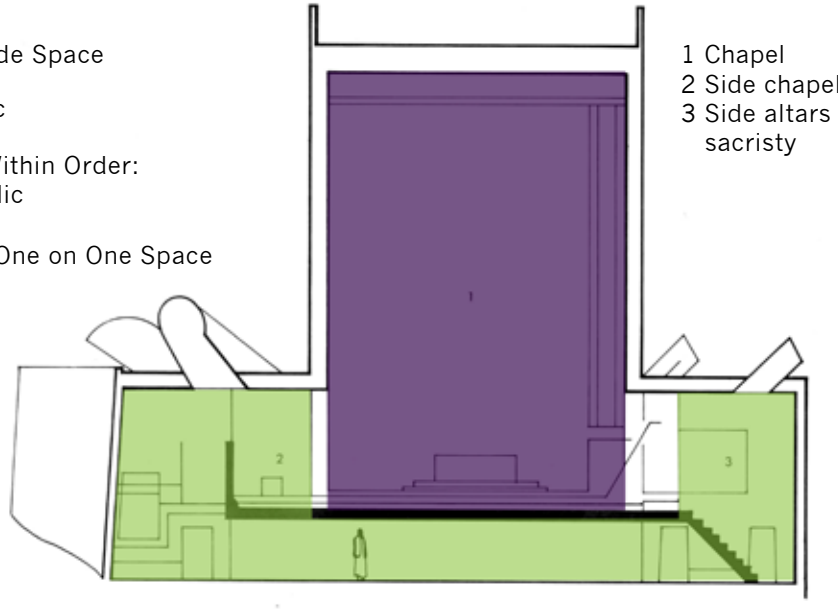
Private/Solitude Space

Open to Public

Open Space Within Order:
Closed to Public

Semi-Private/One on One Space

Transition,
Connection,
or Separation



1 Chapel
2 Side chapel
3 Side altars and
sacristy

Section Three

Parameter 02 Connection between interior and exterior

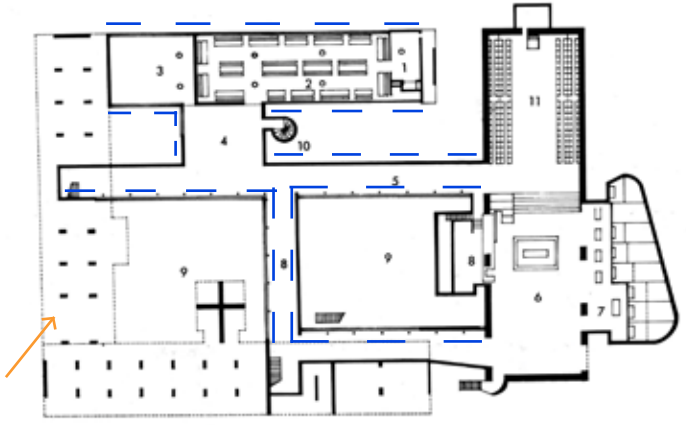
Entrance to open space

Significant view

Blocked windows allowing daylight, emphasizing internal thinking

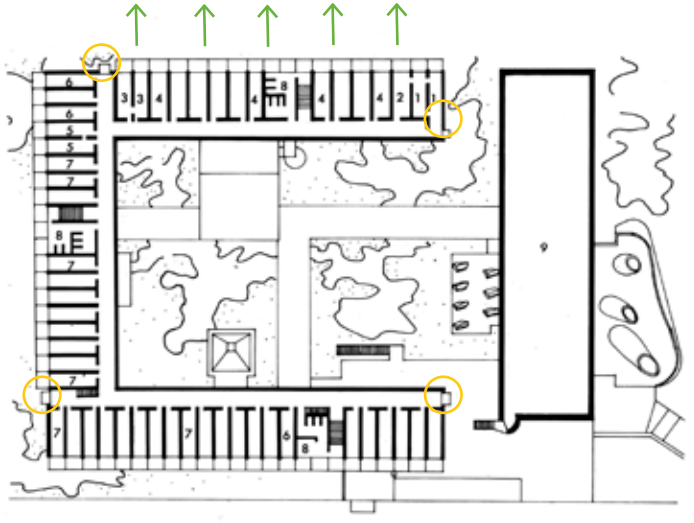
Window wall

Second Floor Plan



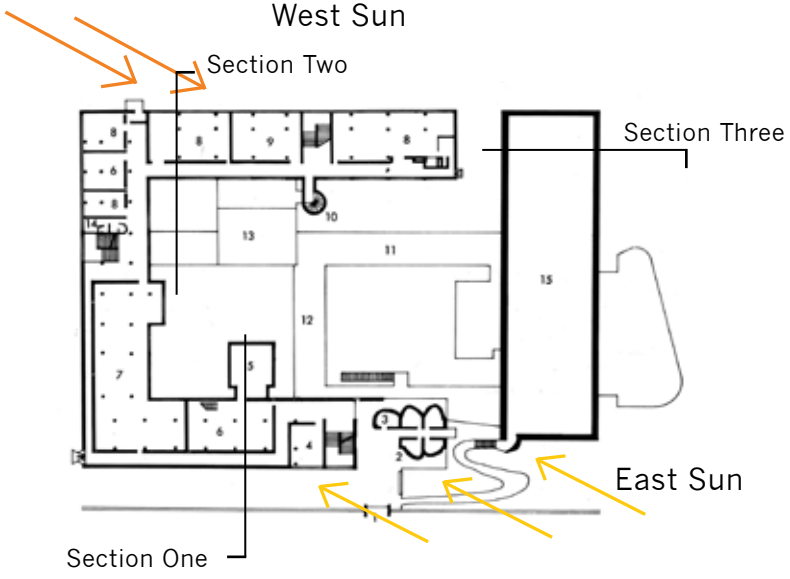
Third Floor Plan

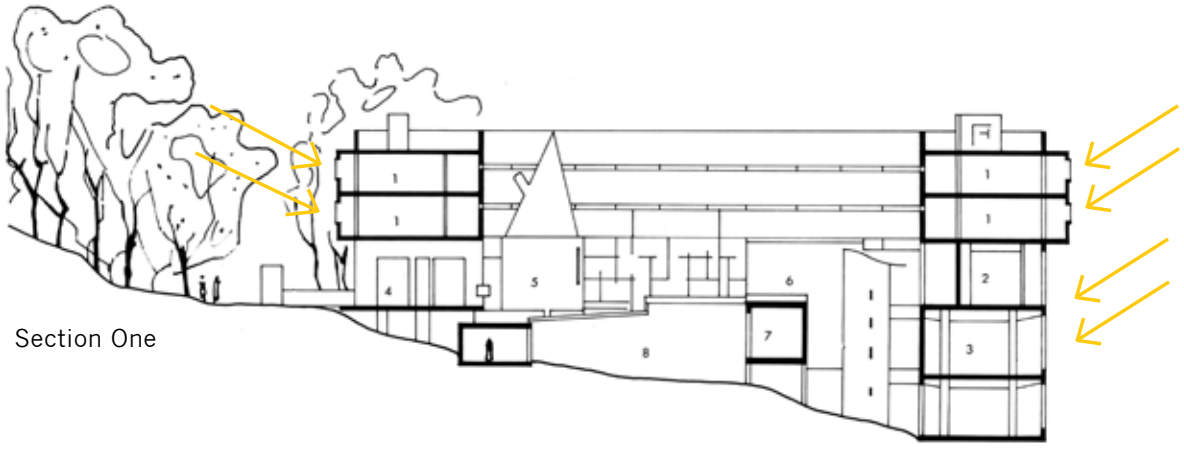
Fourth Floor Plan



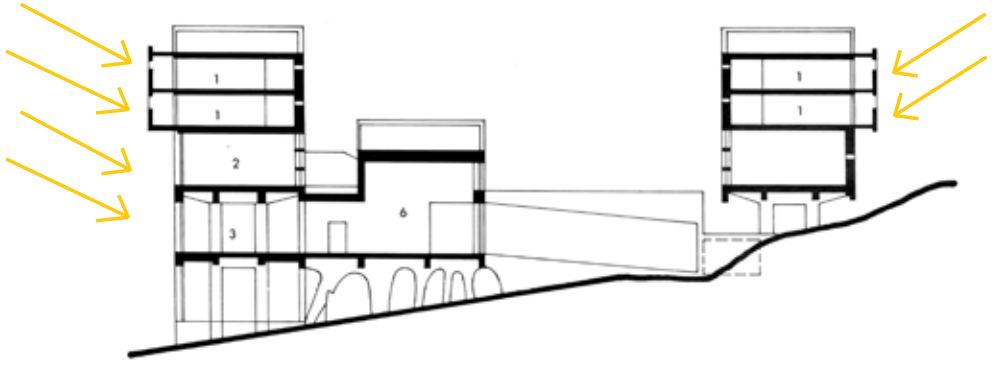
Images clockwise from left: roof, window wall type one, blocked window, and window wall type two.

Left to right: west light wells, east light wells



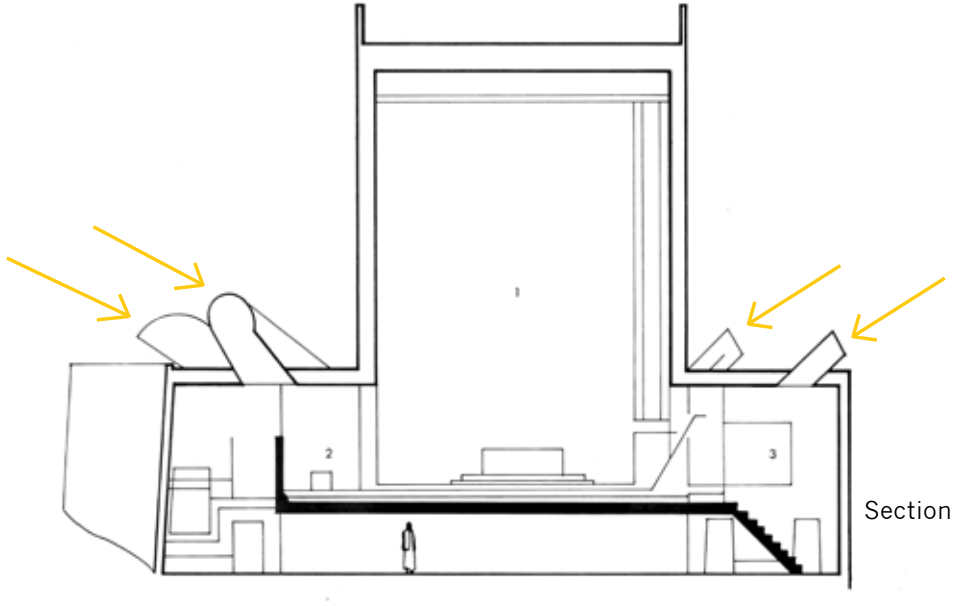


Section One



Section Two

Images represent controlled light entering chapel. (Left 23.1, Bottom 23.2)



Section Three

Interior view of east light wells.
(Top 24.1, Bottom 24.2)

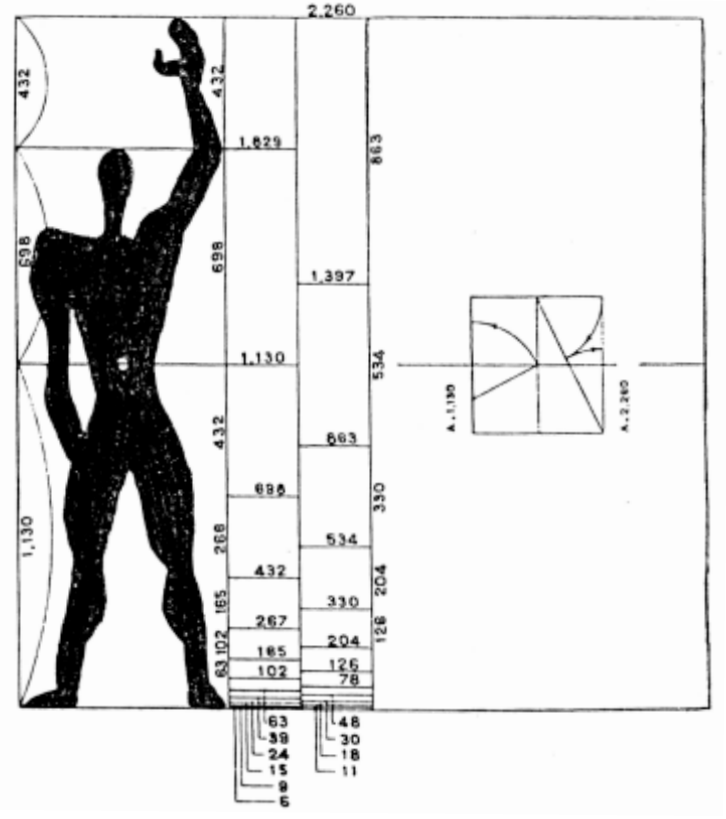
Acoustic Intimacy
In keeping with the purpose of the monastery, La Tourette is a quiet, silent place. Occasional sounds from the French countryside come through an open window and quiet conversations in hallways . While peaceful, this element of La Tourette does not fit into the needs of a mental health facility. Solemn, quiet environments like La Tourette would be alarming and overwhelming to an individual struggling with negative, inward thinking. The most breath-taking acoustic quality of La Tourette is the quality of echoes. Whether standing in the chapel hearing an echoing voice reverberating off walls, or hearing the monks chant at evening vespers, the acoustic quality is remarkable.

Space and Scent
The concrete interior is almost void of smell. Openings to the outdoors bring in fresh air and that circulates freely throughout the space. The lack of smells creates a fresh canvas in a sense. The visitor is not distracted olfactory; therefore allowing sights, sounds and textures to be noticed. The air quality is fresh and energizing and supports an environment where one has the ability for personal reflection. Sitting in a stale, stuffy room is uncomfortable and avoided by most; however, sitting in a room with fresh airflow creates a comfort and pleasantness where one wants to dwell. These qualities should therefore be emulated in therapeutic environments.

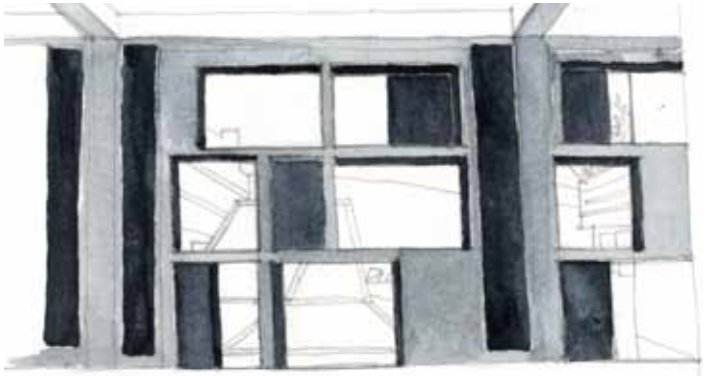
Shape and Touch
By spraying on concrete, Corbusier created a rough texture, giving a feeling of volume rather than flatness to the space. The roughness of the concrete had to be re-examined when the monks reported that such an intense texture made meditation harder to accomplish. Therefore, in front of each desk in the cells, the walls were smoothed. Because the entire facility is made of concrete, the comforting feel of sheets and and wool blankets at night becomes exaggerated. Crawling into bed at night or for a nap becomes a comforting, significant experience. In a therapeutic environment, this same significant experience can be achieved by purposeful placement of softer textures rather than inundating the space with textiles.

Skeleton and Muscle
Two significant moments in the design of the convent responding to skeleton and muscle are the proportions of the monk's cells and upward movement. Corbusier designed the monk's cell with the human body as his scale for measurement, a method he defined as Le Modulor. A second significant moment is each occurrence of an elevation change. Each time one moves toward reflection or inward thinking a step up is taken. One example of this is found in the levels of the building. The further up one goes the quieter, more meditative the atmosphere. The lower levels contain community spaces, the highest housing private cells. The most appealing example of this step up is found in the crypt. Here Corbusier designed individual altars with a separate step to each altar. This step is purposefully highlighted with a designed gap between the step and altar, highlighting its importance. With a therapeutic environment, these two techniques can create significant experiences. Clients will be able to subconsciously move out of "down time" into a reflective, inward focused stance.

Images clockwise starting top left: Le Modulor Proportions, rough sprayed on concrete, stairs, crypt altar with set apart step, Le Corbusier's Le Modulor Illustration (25.1)



Watercolor of window wall type two



The notion of creating a space that guides one toward inward focus, stepping away from the exterior world, is what I find most intriguing about Corbusier's design. The realization that we, as designers, can create such an experience and seeing how Corbusier achieved such a design without leaving one feeling like they were trapped inside a jail cell was critical in the formation of my design. I am inspired by Corbusier's ability to control light, allowing moments of illumination highlighted by protected darkness. Every opening to the exterior is purposeful. Some openings allow light in, while blocking the views to the exterior world. This is seen in the windows at the end of some hallways as well as the chapel. The chapel has numerous windows flooding in direct beams of light, yet there is not a single view of the exterior world. When Corbusier wanted to create a strong connection to the exterior, he flooded a space with light and views. Two different "window walls" are created to achieve this. These windows frame the beauty of the outdoors and are found in corridors and classrooms, areas of little personal reflection. My time spent at La Tourette convinces me that Corbusier was a purposeful architect and the beauty of his designs have a foundation of purpose and intent.

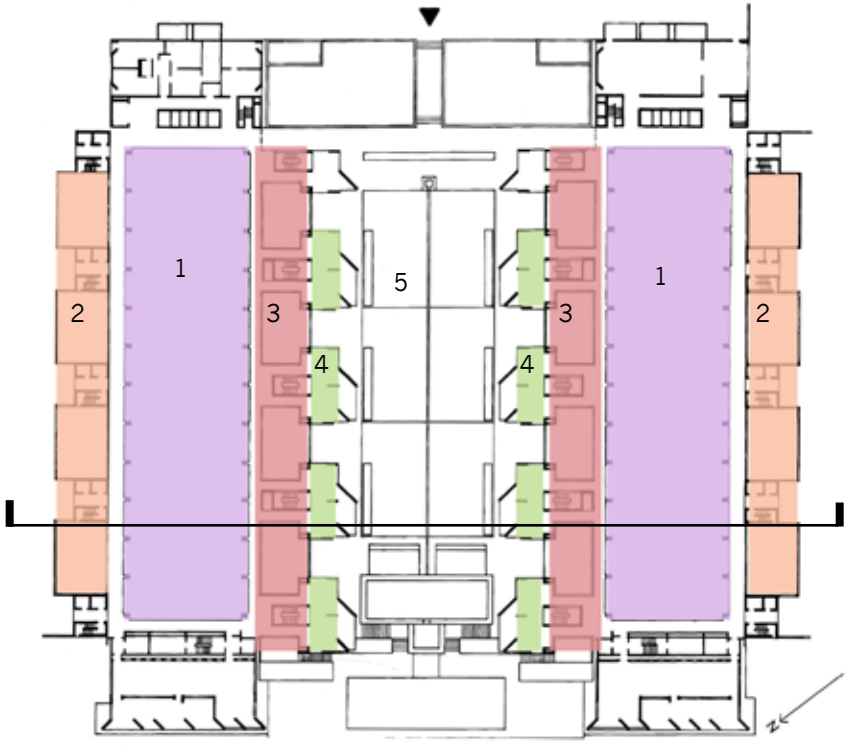
Watercolors starting at top:
window wall type two, window wall type one, altars in crypt

"The Salk Institute of Biological Sciences stands in my mind as a realization in the coming of new institutions. Salk asked me to design a research building for scientists. He needed a hundred thousand square feet because there were ten scientists, each wanting ten thousand square feet · whether they needed it or not. He added that he wanted to be able to invite Picasso to the laboratory. He felt that the belief which makes a painter paint must be constantly felt by the scientist so that he never forgets, in his measurable work, that the immeasurable desires, somehow has come together. He felt that the artist dealing with the immeasurable and the scientist dealing with the measurable, though motivated by immeasurable desires, somehow has come together... The sense that Picasso might be invited formulated in my mind three inseparable parts for the Salk Institute."

Louis I. Kahn

Left: Salk Institute connectors (28.1)
Right: Salk Institute view from outdoor courtyard (29.1)

Parameter 01 Spatial triad: group, semi-private, and private spaces and effective connections between them



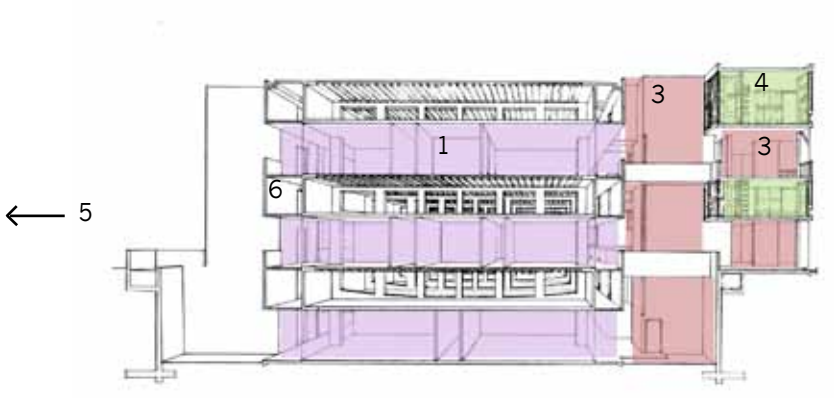
Plan

Private/Solitude Space

Open Space

Semi-Private/One on One Space

Transition or Separation



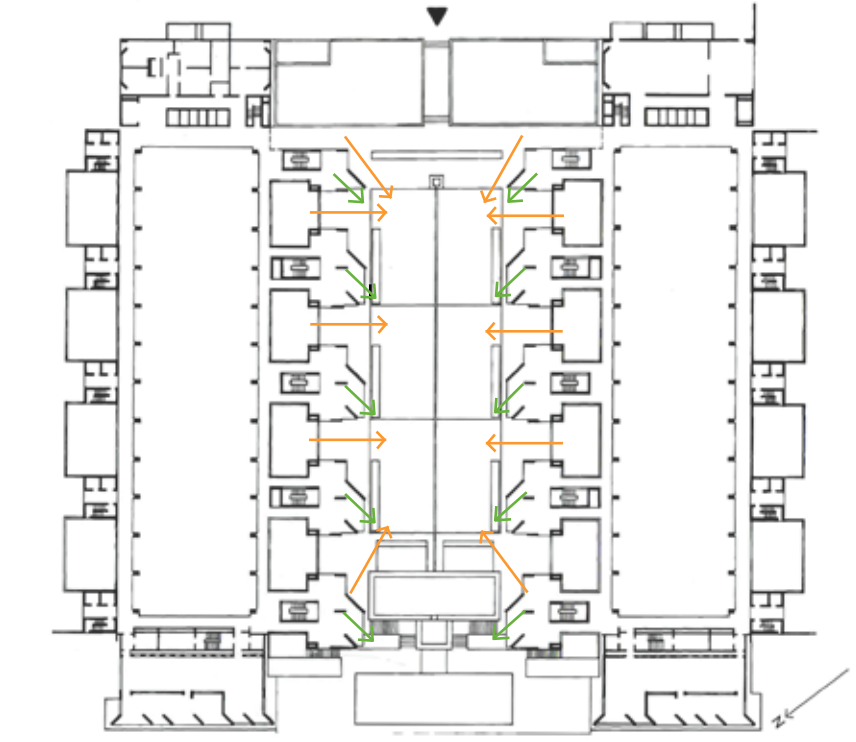
Perspective Cross Section

Left: Salk Institute courtyard (31.1)
Right: Salk Institute view of corridors (31.2)

Cross Section

1 Laboratory Space
2 Circulation/Stairs
3 In-between spaces
4 Private Studies
5 Central Courtyard
6 Structural and Mechanical Support Level

Salk Institute view from inner courtyard (32.1)

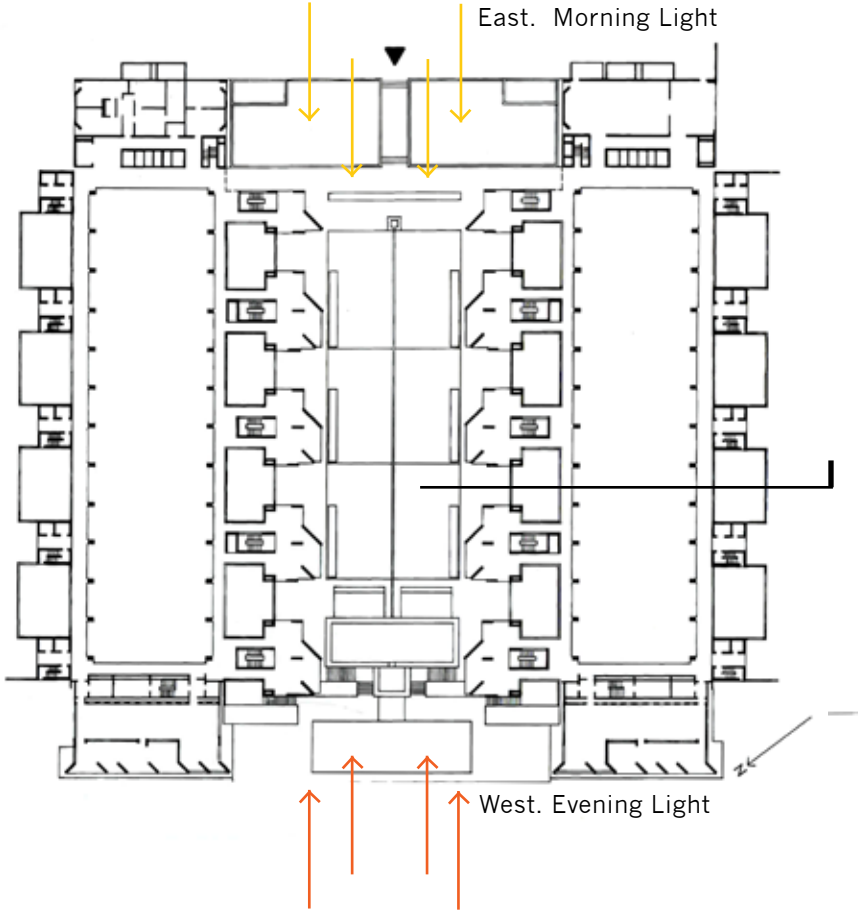


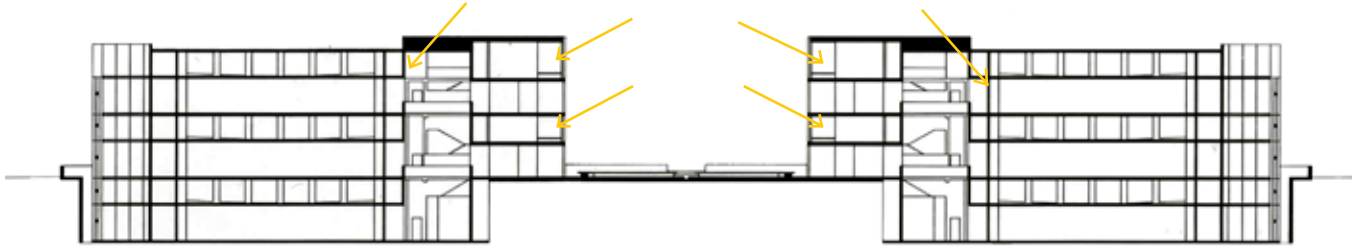
Circulation to open space

Entrance to open space

Significant iew

Parameter 03 Natural Light





Cross Section

Parameter 04 Sensory qualities: acoustic intimacy; space and scent; shape and touch; skeleton and muscle

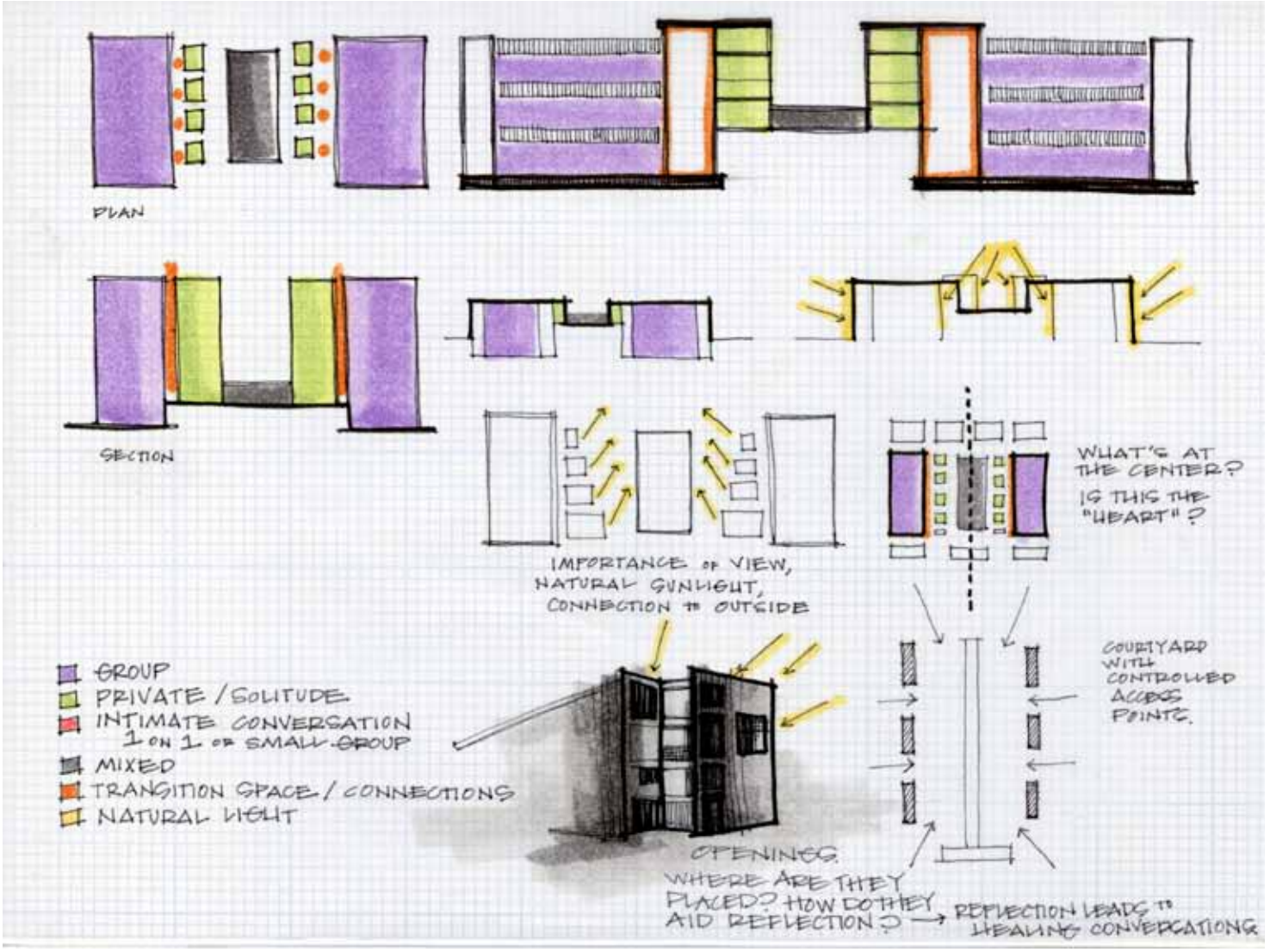
Top Left: Circulation Spaces/Outdoor Environment (34.1)
Left: Haptic Quality of Wood (34.2)
Top Center: Poured in place Concrete (34.3)
Top Right: Fountain: Sound (34.4)
Right: Built in Benches; View of Ocean (35.1)

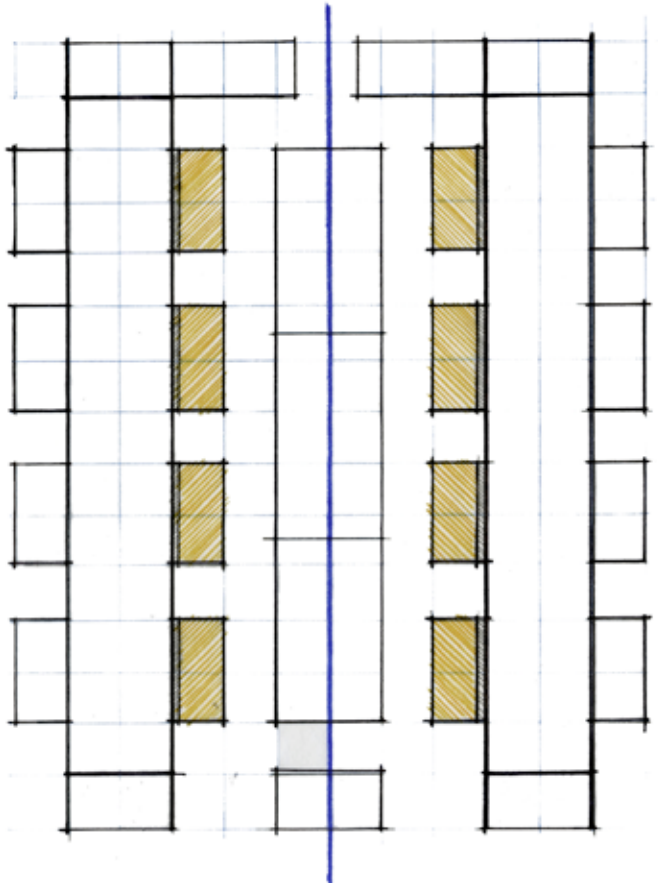
Acoustic Intimacy: The sound at the institute is both quiet and calm. The waterway running through the center of the courtyard ends with a fountain pouring water; however, aside from this flow of water, no significant sounds stand out. This creates a pleasant environment for researchers, specifically in the study rooms provided adjacent to the courtyard.

Space and Scent: The Salk Institute does not have a particular or overwhelming scent. The outdoor environment in addition to the location near the ocean and canyon, provides a fresh outdoor air, helping the institute avoid becoming a sterile concrete environment.

Shape and Touch: Painstaking measures were taken to create a concrete ideal for this site, in both texture and color. Kahn wanted the concrete left in its natural state allowing visibility of imperfections. Kahn also wanted the courtyard to be covered in travertine, creating a beautiful relationship between these two materials. This creates an experience where one naturally can touch and interact with the materiality of the building. The concrete is juxtaposed next to wooden shingles on the study rooms creating contrast and calling attention to different uses of space.

Skeleton and Muscle: Stairs and circulation pathways, giving a sense of movement, suggest change in activity and purpose. One passes through a corridor to transition from laboratory to personal study space. Another transition happens when entering the many levels of outdoor spaces. This physical movement thus signifies to the body a change in purpose.


PLAN
SECTION
IMPORTANCE OF VIEW, NATURAL SUNLIGHT, CONNECTION TO OUTSIDE
WHAT'S AT THE CENTER? IS THIS THE "HEART"?
COURTYARD WITH CONTROLLED ACCESS POINTS.
GROUP
PRIVATE / SOLITUDE
INTIMATE CONVERSATION 1 ON 1 OR SMALL GROUP
MIXED
TRANSITION SPACE / CONNECTIONS
NATURAL LIGHT
OPENINGS
WHERE ARE THEY PLACED? HOW DO THEY AID REFLECTION? → REFLECTION LEADS TO HEALING CONVERSATIONS

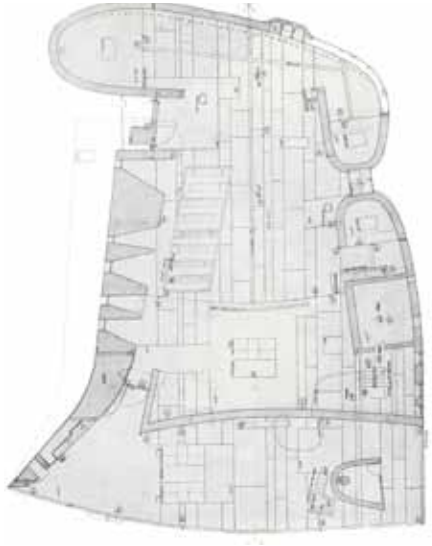


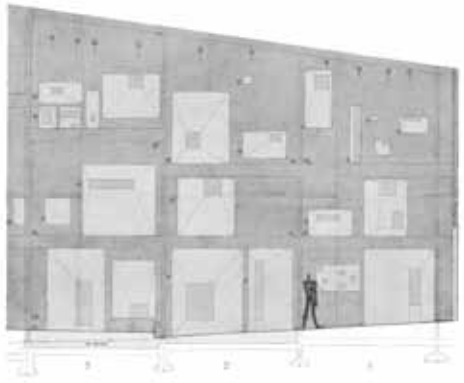
What I have come to appreciate most about the Salk Institute is the care that was taken to choreograph an experience. While the space feels universal and adaptable to different programs, it simultaneously feels focused on specific interactions. Laboratories are left open, giving room for creativity and connection between researchers. Studies are created for quiet meditation. In a beautiful gesture, Kahn creates gradual transition spaces, allowing one to go from a group experience to one of solitude. These spaces provide moments of spontaneous connection and small group interaction. Instead of creating a hallway or means of egress from one space to the next, Kahn creates another unique space in and of itself.

Far Left: Sketches of Salk Institute; left: diagram of plan

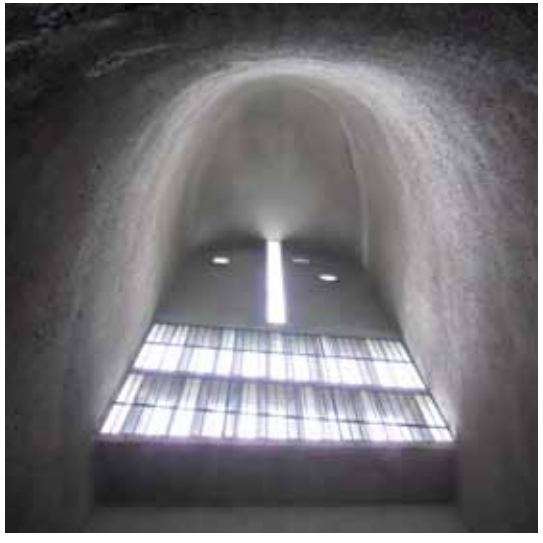
Chapel of Notre Dame du Haut, Le Corbusier **Ronchamp, France 1955**

Parameter 03 Natural Light and **Parameter 04** Sensory qualities: acoustic intimacy; space and scent; shape and touch; skeleton and muscle





Clockwise Starting Left: Floorplan (40.1), Watercolor of Window Wall, Le Modulor Illustrated Next to Window Wall (40.2)



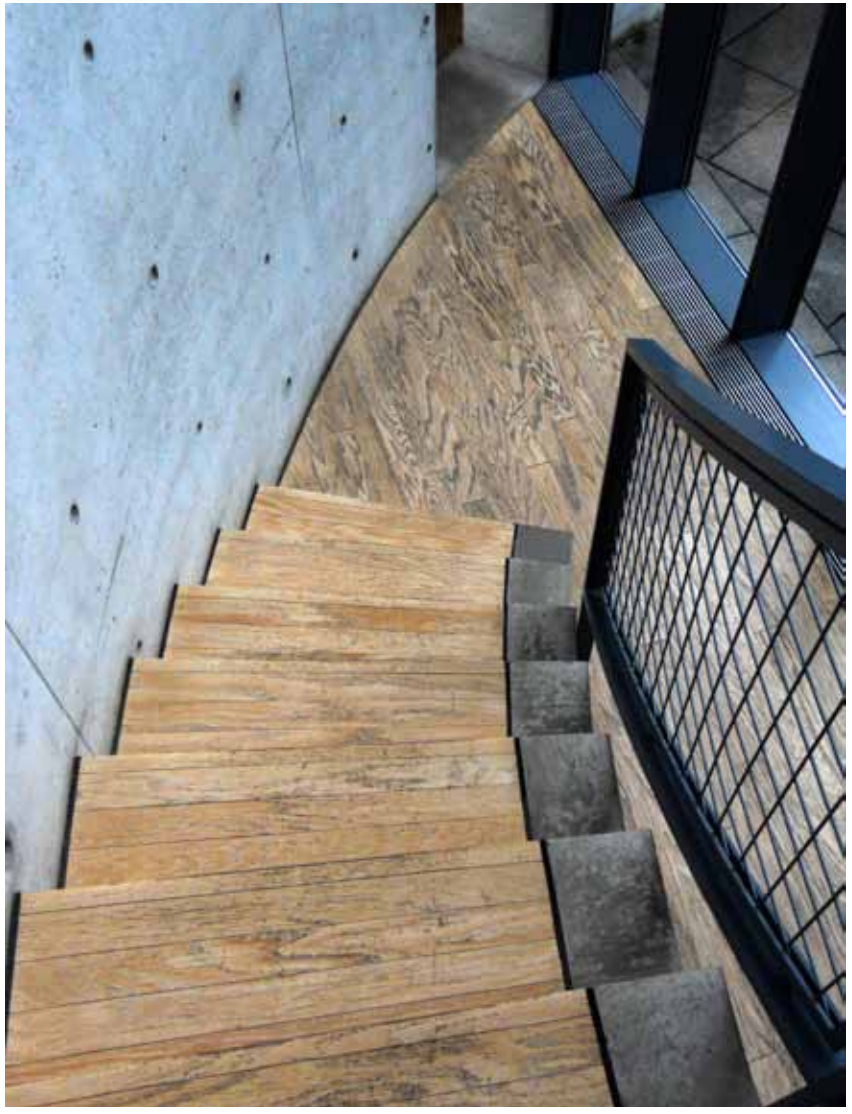
A key feature of Le Corbusier's chapel in Ronchamp is the main window wall. The thickness of this wall and angles in which light is allowed to enter the chapel creates a mystical, awe-inspiring space. Not only does this wall control the light as it enters, each opening is based on Le Corbusier's Le Modulor. These proportions become an example of skeleton and muscle as the body responds to each size when entering or exiting these hidden spaces. Overall, Ronchamp is an exquisite example of a therapeutic environment created by controlling light.

Clockwise Starting at Top Left: Window Wall, Light Flooding into Chapel, Window Wall Front View, Proportions of Window Seat, Window above Altar

Vitra Conference Center, Tadao Ando **Weil am Rhein, Germany 1993**

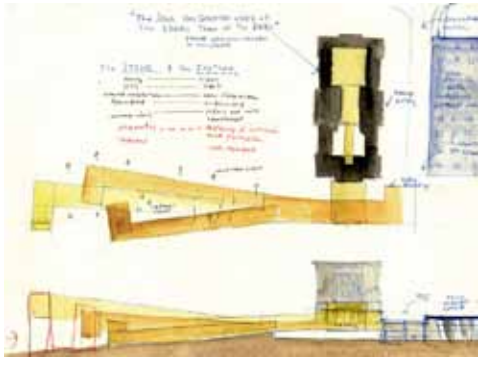
Parameter 03 Natural Light and **Parameter 04** Sensory qualities: acoustic intimacy; space and scent; shape and touch; skeleton and muscle

Clockwise starting on left:
eating area, captured light,
and proportions of concrete



Ando masters creating a mood and an experience choreographed by the control of natural daylight. He is not afraid of darker corners and never floods a space with light; rather he uses light to create intimacy. This technique is perfect for a therapeutic environment. Ando also works with consistent proportions that create a feeling of calmness and meditation. These proportions are largely used in the sizes of each concrete block. He takes his proportions so seriously that even decisions about the number of holes left for formwork in concrete respond to the need for the perfect dimension and not for needed structural support. Finally, Ando uses a simple palette of wood, exceptionally smooth concrete and glass. These materials speak to the overall soothing and meditative atmosphere.

Materiality and detail of stairs



01 02

Process Case Studies

Process case studies focus on the work, design process, and philosophies of W.G. Clark and Steven Holl. The intention is to study how each architect gains inspiration and makes design decisions.

01 Steven Holl Sketch (45.1)
02 W.G. Clark Model (45.2)

Middelton Inn, W.G. Clark **Dorchester County, South Carolina, 1982-1985**

"Every place you build is ancient and that is why one must be careful."

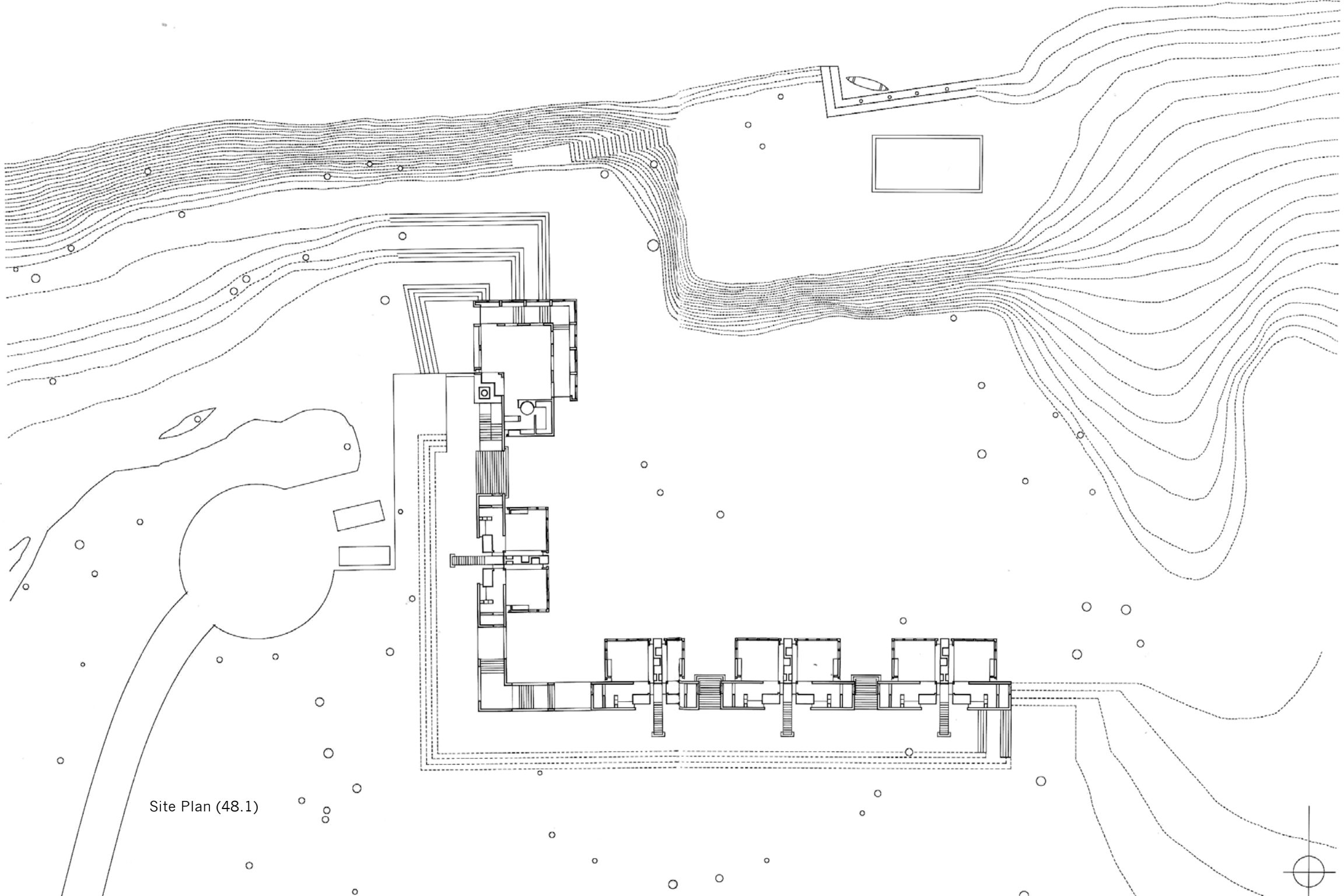
-W.G. Clark

After five years and three different designs, the Middleton Inn was finished or just beginning, depending on ones view of "finished" architecture. During the design process Clark was interested in three different ideas of place. He recognized that what one titled "place" was actually three different places: the physical place (topography, a dirt path, sunlit trees), the place of cultural tradition (the place's traditions from previous cultures inhabiting the land), and the place of evocation (a place reminding one of another place).

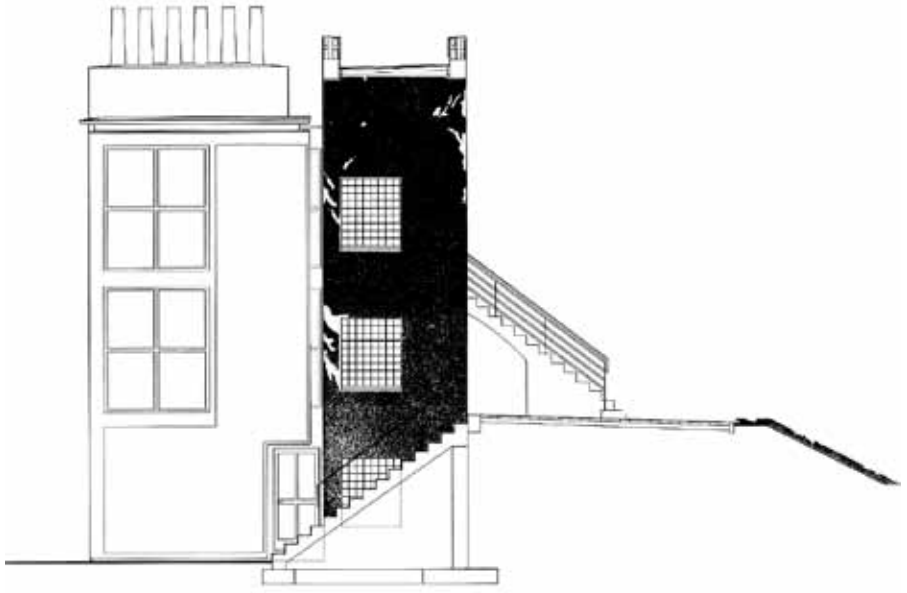
Far Left: Middleton Inn (46.1)
Below Left: Ruins of Sheldon Church (47.1)
Below Right: View of Inn from the river highlighting the L-shape massing(47.2)

Two significant experiences shaped Clarks' design of the Middleton Inn. The first experience occurred when he made a site visit. Clark recalls weaving his way through the dense, overgrown landscape. Full of cottonmouth moccasins and unable to see three feet ahead of him, he admitted that the walk was rather scary. What he discovered in that experience proved invaluable. As Clark was exploring he thought he recognized a second embankment. A follow up survey confirmed this suspicion of an L-shaped embankment cutting into the land. Clark later found out that a phosphate mine was once located on the site. The phosphate explained why Clark found multiple fossils: the land had once been covered in water. These realizations led to understanding the site as a place of evocation, as well as the project massing.

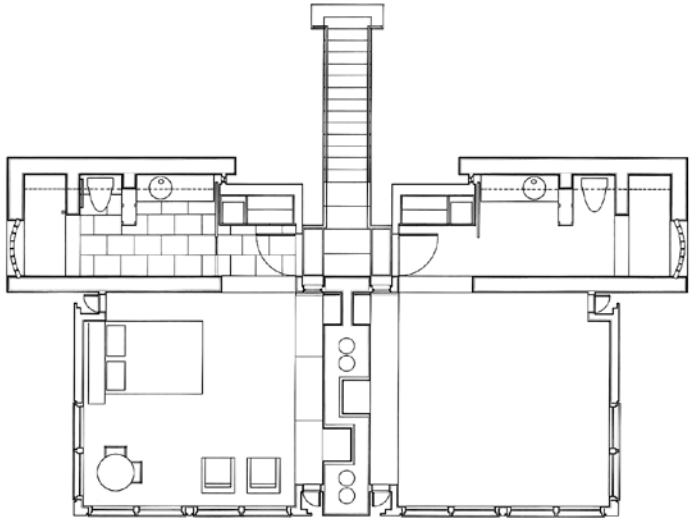
The second experience occurred when Clark visited the ruins of Sheldon Church in South Carolina. Clark describes his experience of the ruins as a time of being transfixed. He talks of his awe and mouth-watering admiration of the site. After that visit Clark saw architecture inside out, a principle he applied to the Inn.



Site Plan (48.1)



Section Through Wall/Guest Room Elevation (49.1)



Room Plan (49.2)

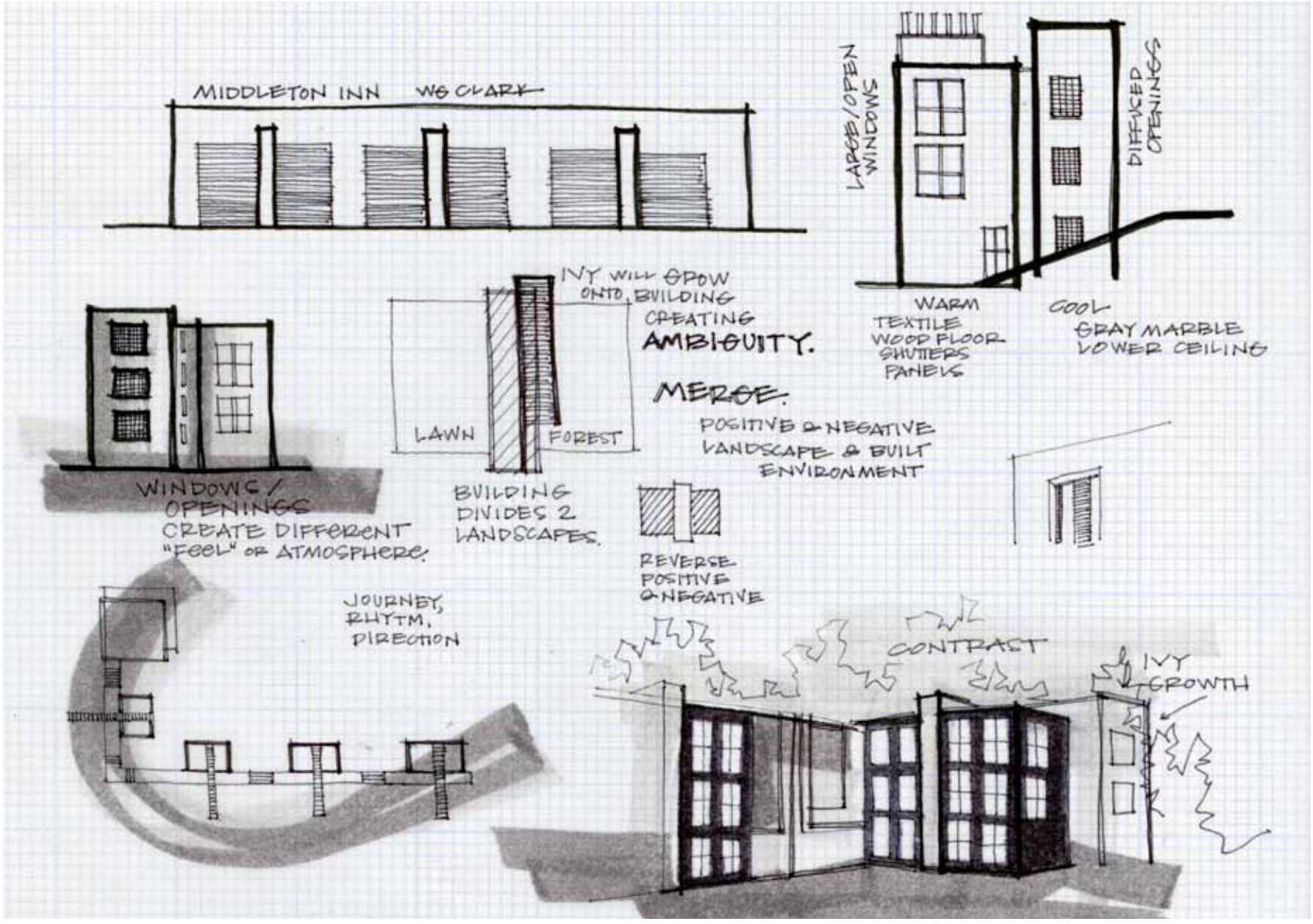
As Clark began his design development he made two decisions. First he decided he did not want the building to be a building, but rather a separation of two landscapes. He therefore stretched the building out as far as he could, realizing that this decision was not at all economical. The second decision came from Clark's desire to make the building a little mysterious. He wanted the person approaching from the back to not realize right away whether the building was a ruin or an inhabited space. Thus the back wall was to be covered over time in fig vine. This second decision would only be realized as the vine was allowed to "grow" over time onto the structure. This decision was also a nod to the gardens. Clark thought of the building as a topiary not architecture; he desired that one not even see the walls.

It was only at this point that the building evolved into two separate components: stucco covered masonry walls Clark calls armatures stretching from the chimney of the main lodge all the way around a 90 degree bend with apertures into upper floors. The height of the mine allowed three stories without more than one set of stairs. Clark considered the second component to be a cabinet: a painted structure containing guest rooms set against a masonry structure. The transition and different feel of these spaces were key to Clark's design, as it transformed from a very dense, hard, compact space into a wooden room with glass, views and light. Each room has two faces of glass rather than one. His concern with matters of voyeurism led him to design floor-to-ceiling shutters giving guest a range of options for how much or little openness would be allowed. The room could be completely open or completely closed off. Thus Clark gave each guest a sensation of being in a corner room of a hotel with complete control over views and privacy.

personal reflections

Through studying Clark's work and process I find work that is created in a slow and sensitive manner. In the design of the Inn he took the time to listen to what his site had to offer. He did not rush the research process and as a result created a successful design resting on the foundation of good research. In addition to this I find a design willing to allow a thought process to become a journey. Clark did not go into this project with any preconceptions; rather, he went on a journey, allowing research a voice in guiding a design. My interview ended with Clark saying:

> "The design process
> begins with a few salient thoughts;
> but as you move along other thoughts
> jump onto the wagon.
>
> One idea takes you along."
>
> W.G. Clark


MIDDLETON INN WG CLARK
LARGE/OPEN WINDOWS
DIFFUSED OPENINGS
WARM
TEXTILE
WOOD FLOOR
SHUTERS
PANELS
COOL
GRAY MARBLE
LOWER CEILING
IVY WILL GROW ONTO BUILDING
CREATING
AMBIGUITY.
MERGE.
LAWN
FOREST
POSITIVE & NEGATIVE
LANDSCAPE & BUILT
ENVIRONMENT
WINDOWS/
OPENINGS
CREATE DIFFERENT
"FEEL" OR ATMOSPHERE.
BUILDING
DIVIDES 2
LANDSCAPES.
REVERSE
POSITIVE
& NEGATIVE
JOURNEY,
RHYTM,
DIRECTION
CONTRAST
IVY
GROWTH

Throughout the duration of my thesis, I consistently went to the writings and work of Steven Holl for inspiration. His writings specifically challenged me, providing questions causing me to analyze design decisions. The following pages record some of these writings and my questions that followed. Images of Holl's work that I believe visually capture the questions I am asking are portrayed.

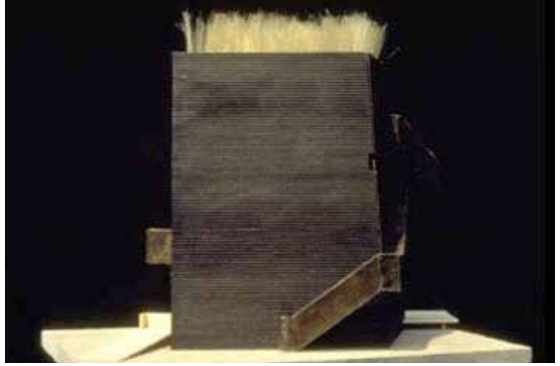
Knut Hamsun Center (52.1)

“Our modern concept of time is based on a linear, and perhaps disjunctive, model. The problem of temporal fragmentation of modern life; the destructive effects of increasing levels of media saturation resulting in stress and anxiety, might be countered in part by the distention of time in the perception of architectural space. The physical and perceptual experience of architecture is not a scatter or dispersion - but a concentration of energy. This physically experienced ‘lived time’ is measured in the memory and the soul in contrast to the dismemberment of fragmented messages of media” (Holl, 74).

Does limiting the amount of media and increasing the quality of the built environment improve therapeutic endeavors? Is all architecture a “concentration of experience” or only a certain quality of architecture? What qualities of architecture create a “concentration of experience,” impact therapy and create a healthy environment? How can the answers to these questions justify the need for residential treatment over a day treatment facility?

Knut Hamsun Center Interior (53.1)

Watercolors of Knut Hamsun Center (54.1)



“The haptic realm of architecture is defined by the sense of touch. When the materiality of the details forming an architectural space become evident, the haptic realm is opened up. Sensory experience is intensified; psychological dimensions are engaged. The total perception of architectural spaces depends as much on the material and detail of the haptic realm as the taste of a meal depends on the flavors of authentic ingredients. As one can imagine being condemned to eating only artificially flavored foods · so in architecture the specter of artificially constituted surroundings imposes itself (Holl, pg 91).”

How does Holl’s design process reflect these beliefs? Holl’s process involves modeling with multiple materials as well as watercolors and sketches rich in texture and saturation. How does his design process allow his final spaces the richness in the haptic qualities they posses? Is there a connection between design process and final product? Does the medium Holl uses drive final design decision of materiality or does his vision of his final space drive choices in design medium?

Models of Knut Hamsun Center (55.1)

Programmatic Case Studies

Programmatic case studies focus on spatial considerations concerning wanted and unwanted adjacencies and specific design needs as seen in current residential treatment facilities for eating disorder patients.

Renfrew Center Philadelphia (57.1)

Renfrew Residential Treatment Facility , Atkin, Voith & Associates **Philadelphia, PA, 1985**

The Renfrew Residential Treatment Center in Pennsylvania was the first facility designed for the sole treatment of eating disorders. Prior to this facility, residential programs for eating disorder clients were housed in other residential mental health facilities. At the time of Renfew's design and creation professionals acknowledged the need for a separate facility due to the specific nature of therapy and care for this disorder. Because of this, Renfrew's Philadelphia campus is an ideal starting point. Through the study of this facility one can see where research began, what worked and what needed improvement. Below are the key factors and considerations that resulted from this case study:

Treating both physical and behavioral problems is crucial.

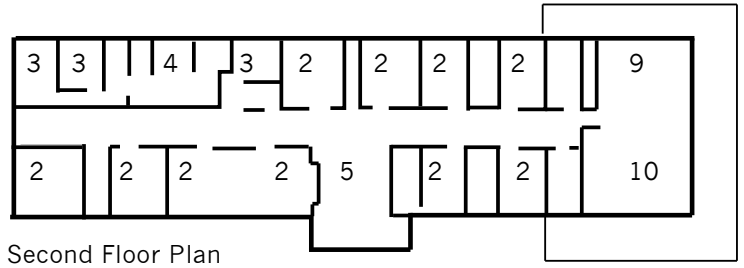
A facility of this sort must be designed neither as a hospital nor residence but something in between.

Architects and designers were challenged by several code issues that led to design failures.

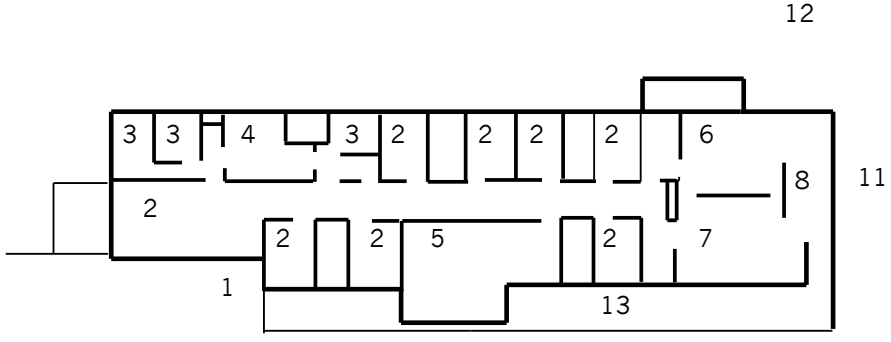
Following the completion of the design, staff wished for more recreational space.

Renfrew Residential Treatment Facility (58.1)

Relationship diagram illustrating layout and order

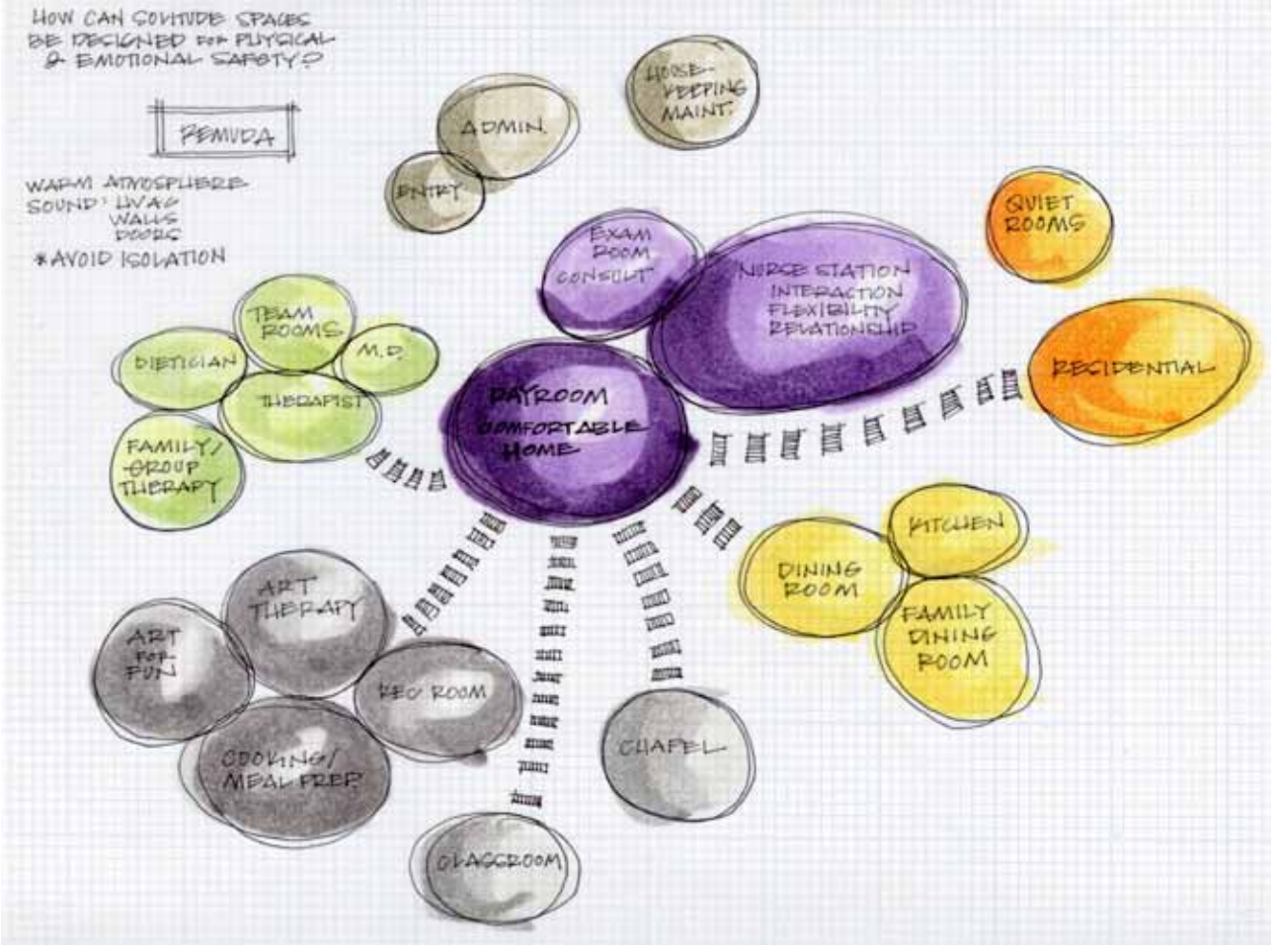


Second Floor Plan



First Floor Plan

1 Entrance
2 Bedroom
3 Time out room
4 Nurses' station
5 Living Room
6 Kitchen
7 Dining Room
8 Adjunct dining room
9 Recreation room
10 Open below
11 Terrace
12 Service yard
13 Veranda



Relationship diagram illustrating layout and order




Left to Right: Hallway Leading to Counseling Rooms, Art Therapy Room (61.1), Day Room (61.2), Chairs in group Counseling Room

Visiting a residential facility became an important and necessary step in the process of understanding the “feel” and function of such a specific facility type. Remuda Ranch was the facility observed. Through a tour and interview with the facility manager, the following key factors, considerations and observations were made:

A team treatment approach and thus layout of offices is critical. The office of the M.D., therapist, and dietician must be kept in close proximity to one another.

Sound proofing of therapeutic spaces in necessary.

Due to safety and exercise concerns, patients cannot be left alone, and rooms must be designed for safety.

Warm temperatures must be maintained throughout the facility.

Family dining style rather than cafeteria is required.

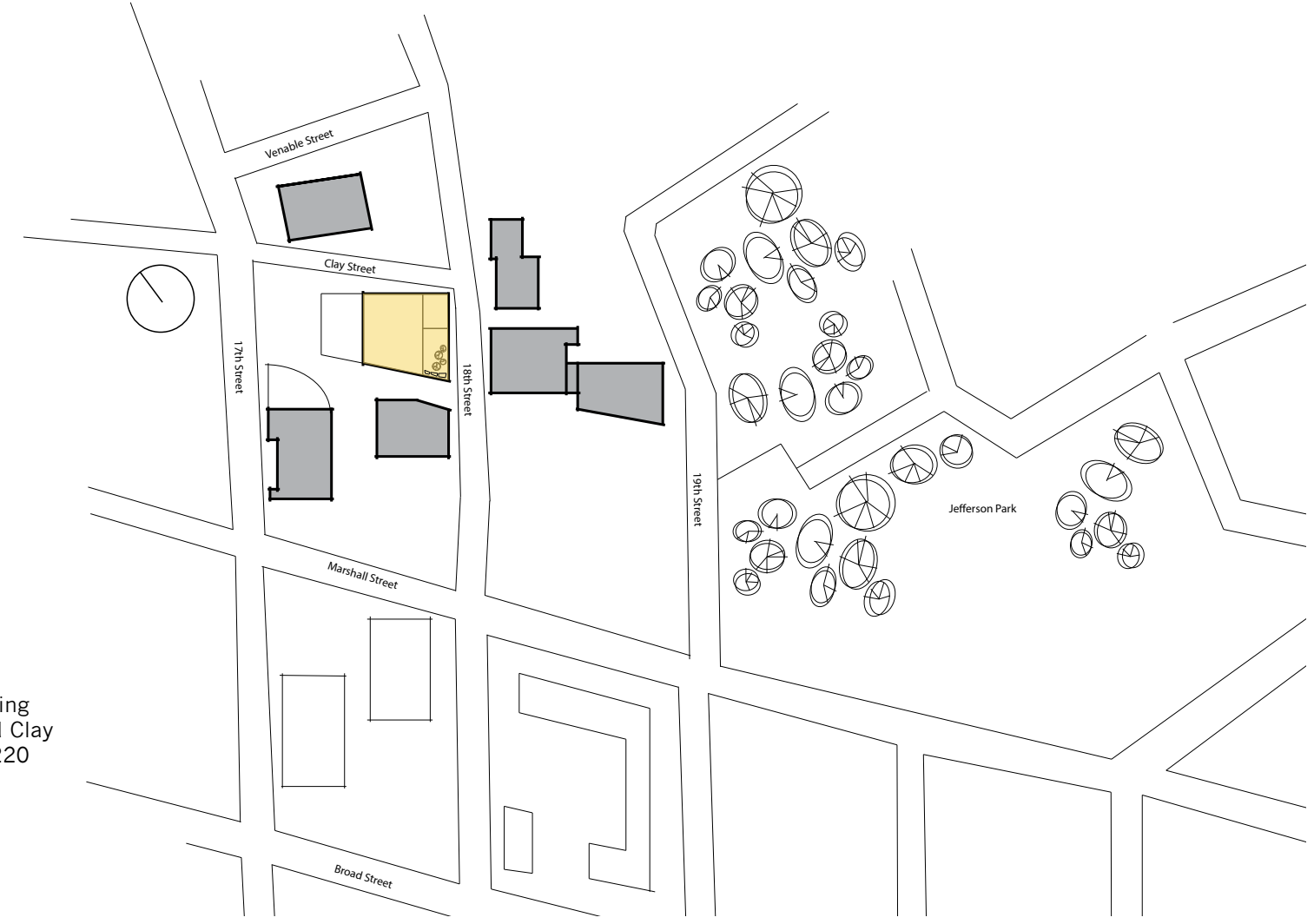
In a facility treating both adults and adolescents, separation is required between the two age groups.

Centrally located nursing station, with a comfortable connection, improves relationship between nursing staff and residents.

Isolation must be avoided.

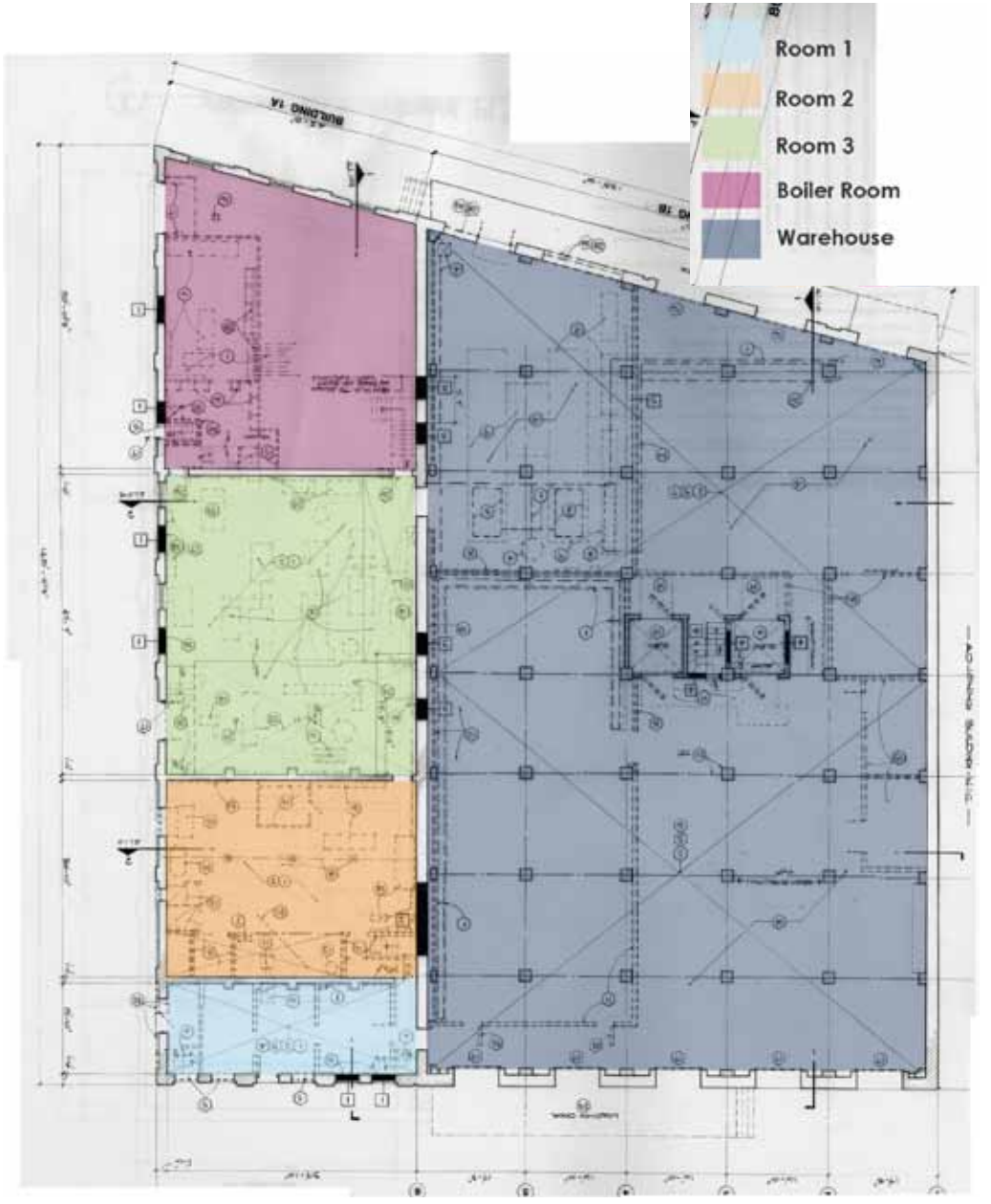
Hallways and entrances must not feel narrow and dark.

Chairs in group and individual therapy spaces should be designed for comfort and flexibility.

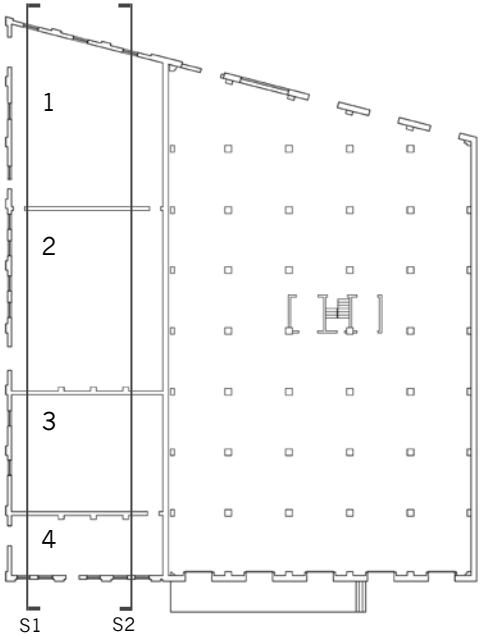


Site Analysis

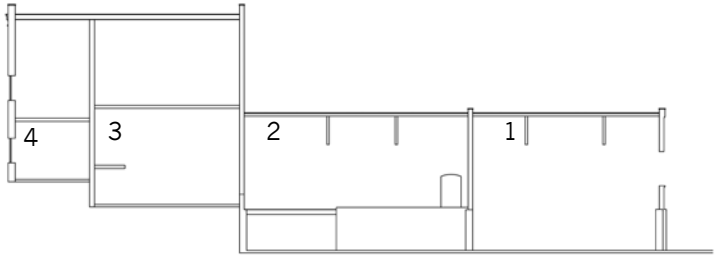
Cold Storage Building
Corner or 18th and Clay
Richmond, VA 23220



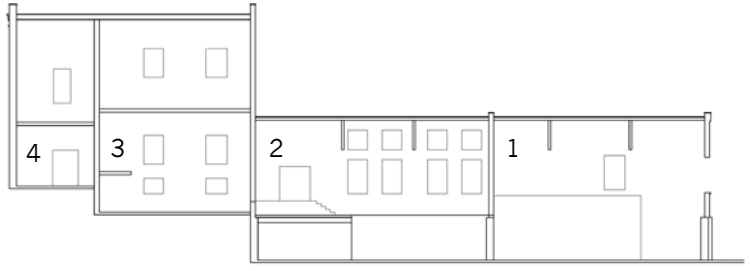
Existing Plan of Ground Floor



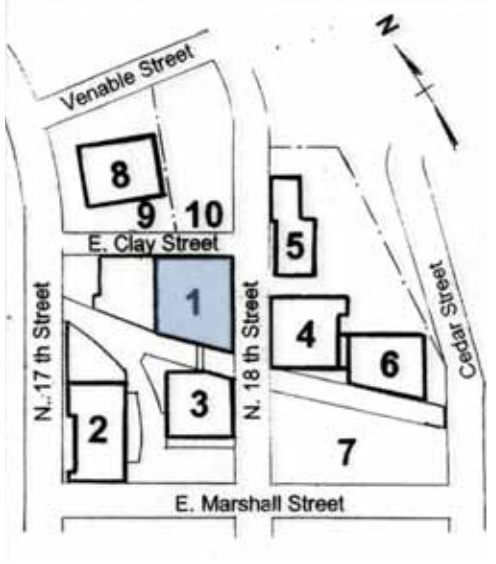
First floor plan



Section One

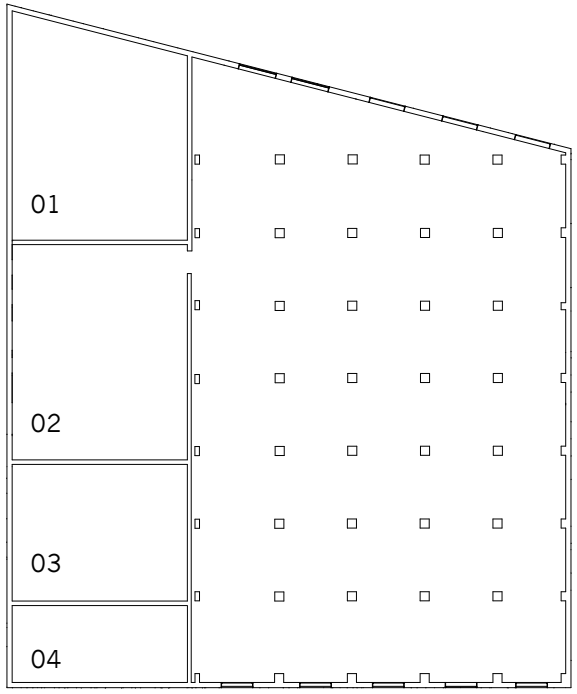


Section Two



1	Boiler Room	1,991.5 Sq Ft
2	Mechanical Equipment Room	1,895 Sq Ft
3	Offices	1,228 Sq Ft x 2 Floors = 2456
4	Offices/Some Cold Storage	630.5 Sq Ft x 2 Floors = 1261 Sq Ft

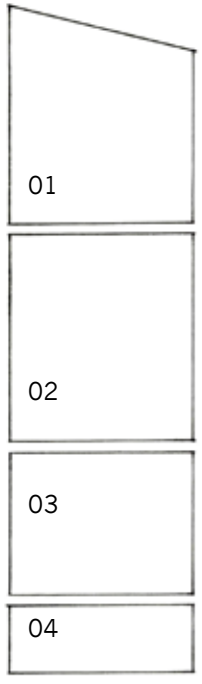
Clockwise from top left:
boiler room, machinery room,
addition one · first floor,
addition two · second floor.
Bottom row images, beginning
on left: addition two · first floor,
addition one · second floor.



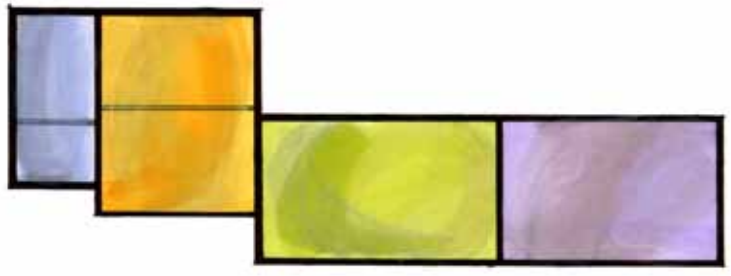
As is Site Plan

01 Boiler Room
02 Machinery Room
03 Office Addition One
04 Office Addition Two

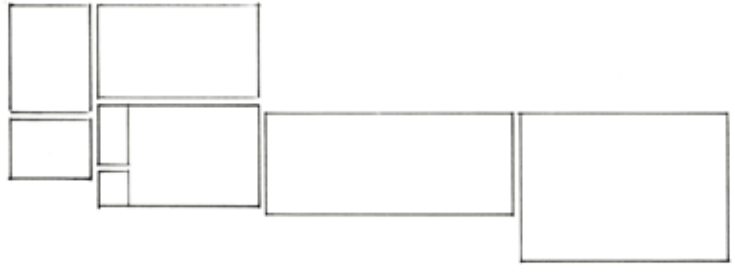
Massing



Unit to Whole



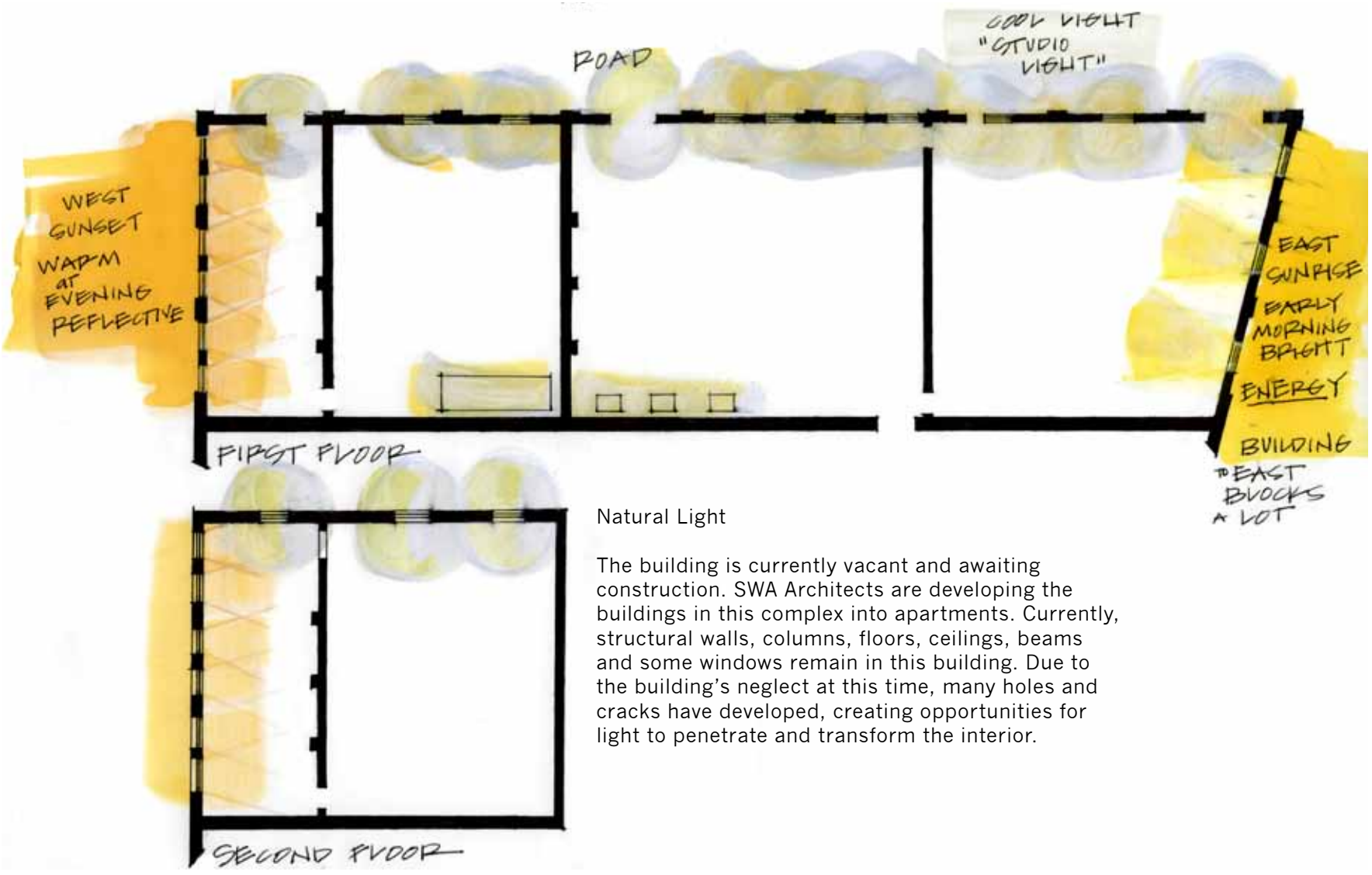
Massing



Unit to Whole



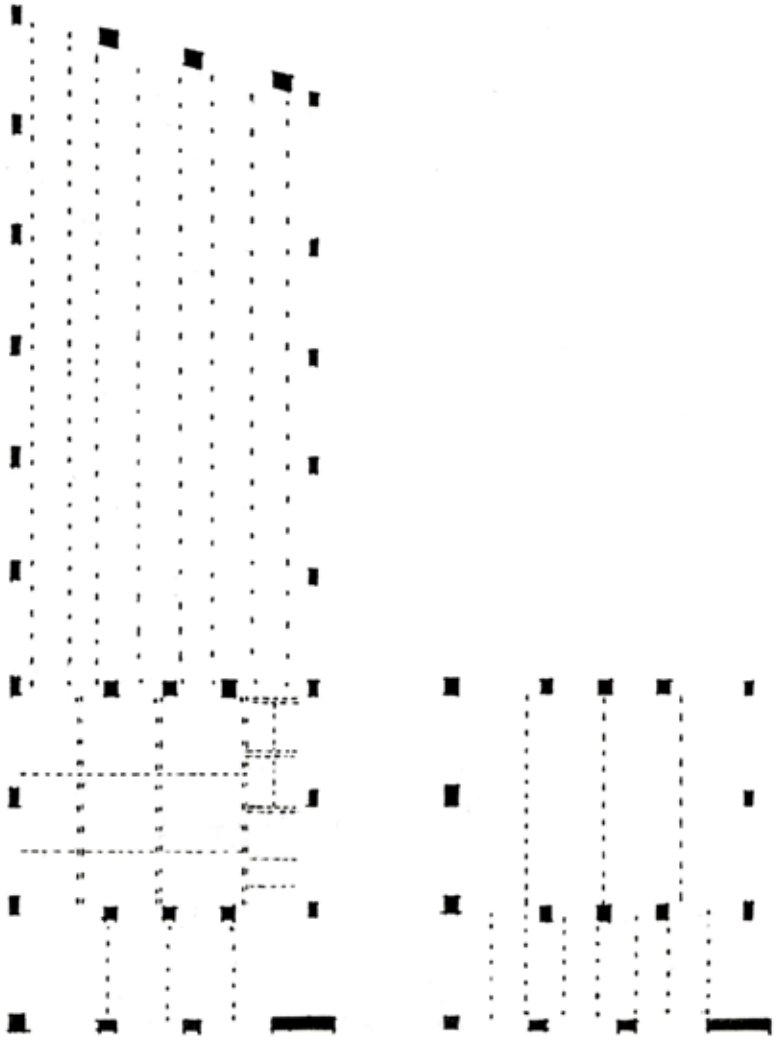
Images of light sneaking through holes and cracks in neglected structure



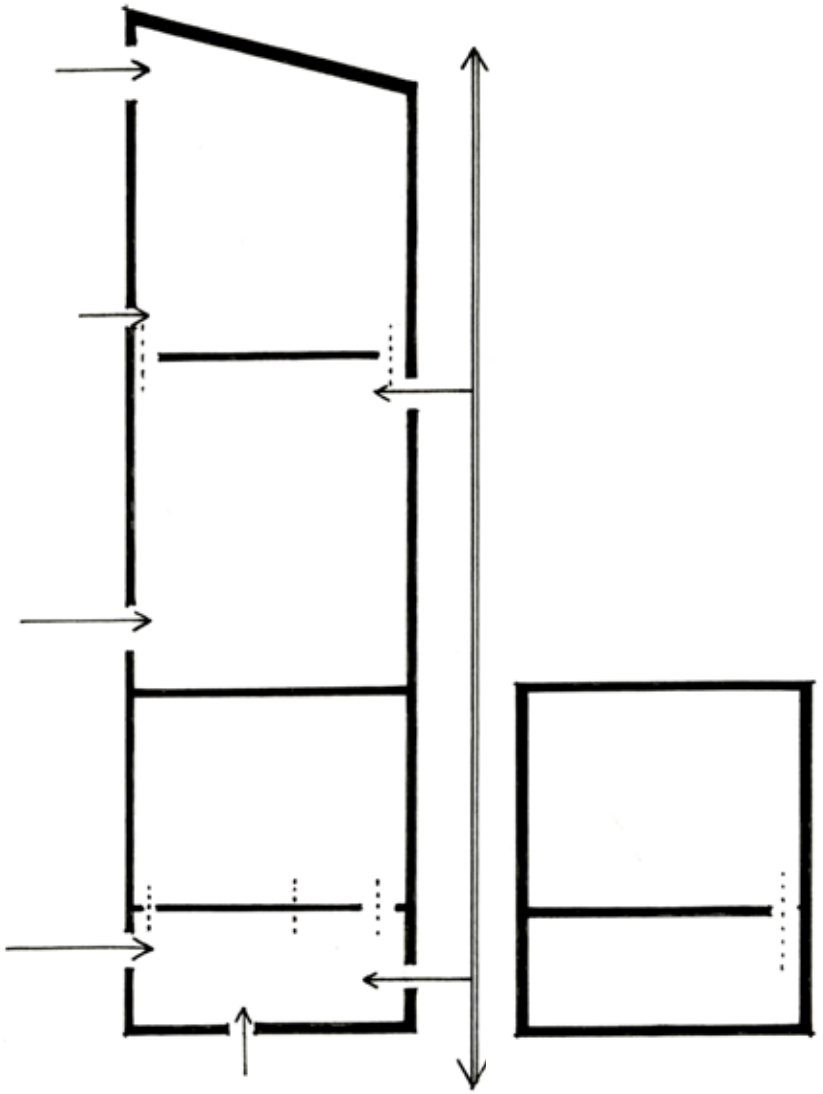
Natural Light

The building is currently vacant and awaiting construction. SWA Architects are developing the buildings in this complex into apartments. Currently, structural walls, columns, floors, ceilings, beams and some windows remain in this building. Due to the building's neglect at this time, many holes and cracks have developed, creating opportunities for light to penetrate and transform the interior.

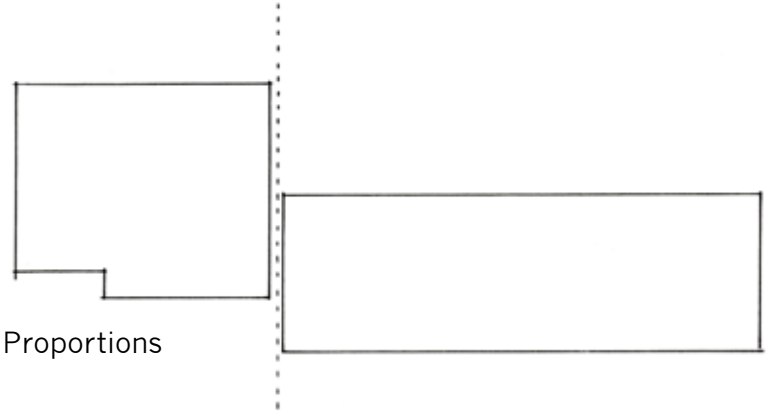
Images clockwise from top left: room three second floor ceiling; room 2 first floor ceiling, room one ceiling, room one ceiling, room two second floor ceiling



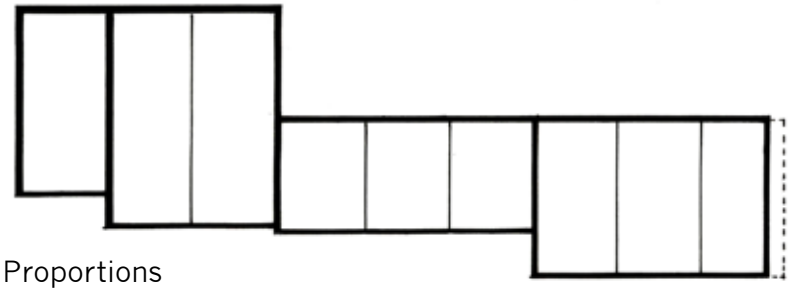
Structure



Connections

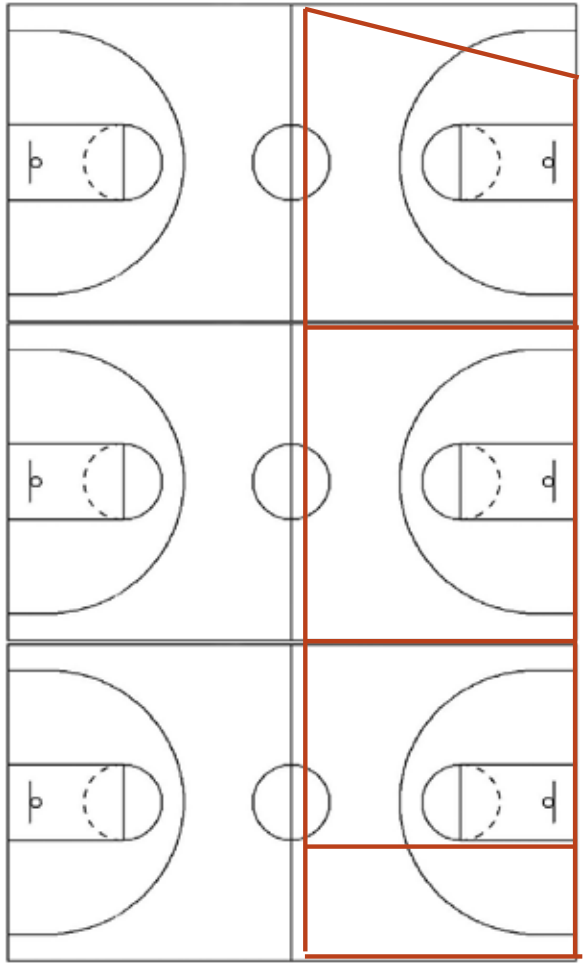


Proportions



Proportions

Proportions



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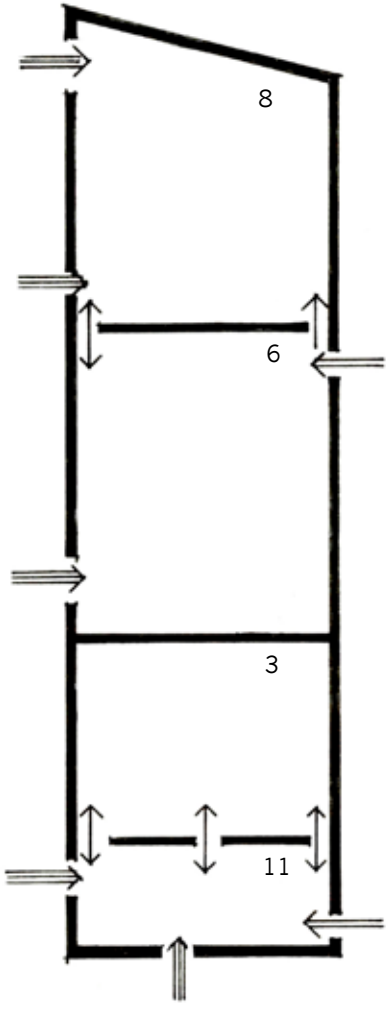
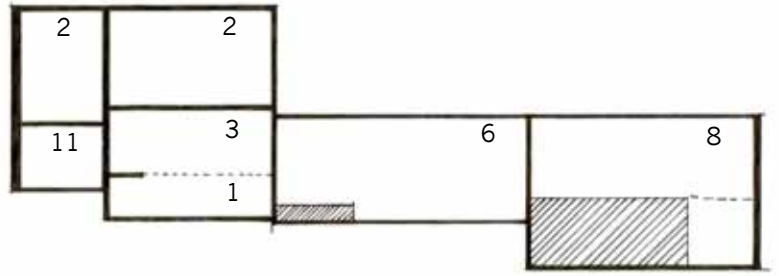
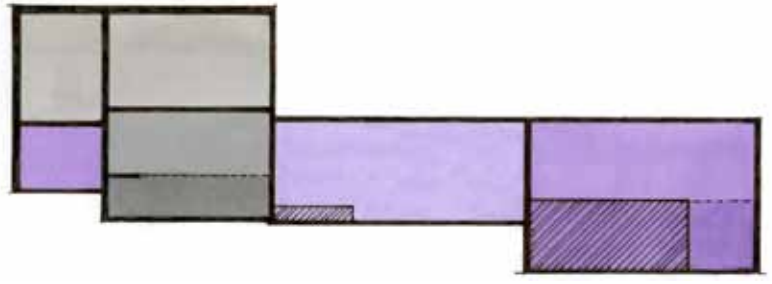




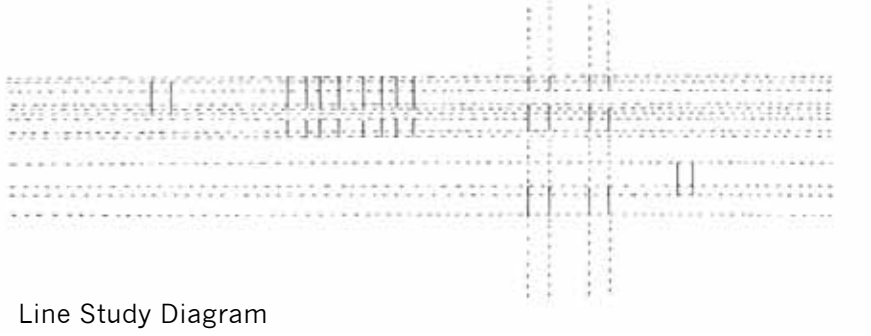


Interior/Interior · 1

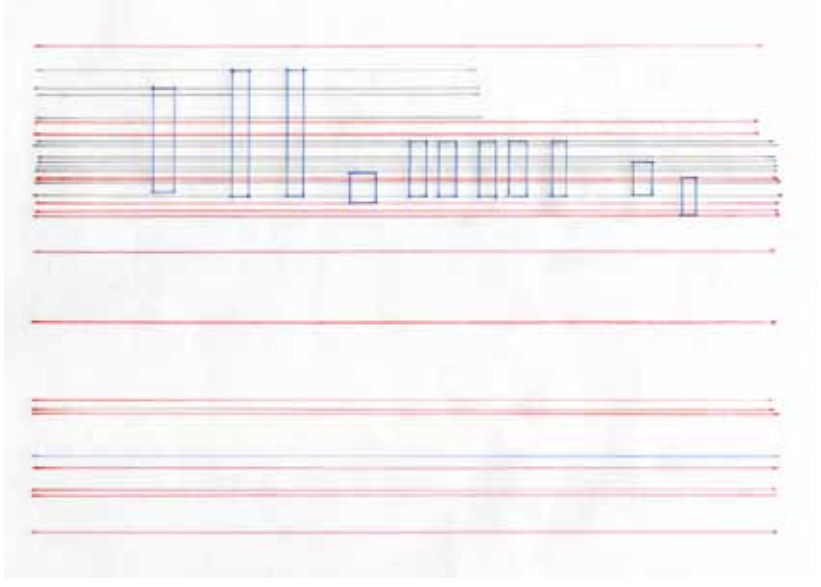
Warehouse/Interior · 2

Exterior/Exterior · 3

Connections



Line Study Diagram



Line Study Diagram

Parti: Levels and Connections

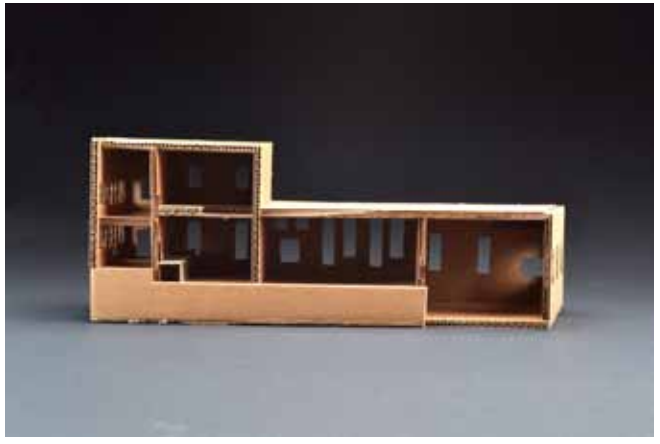
High Connection

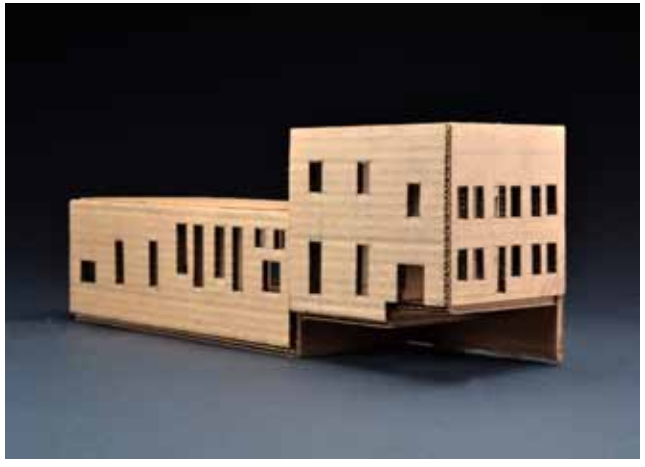
Medium Connection

Low Connection

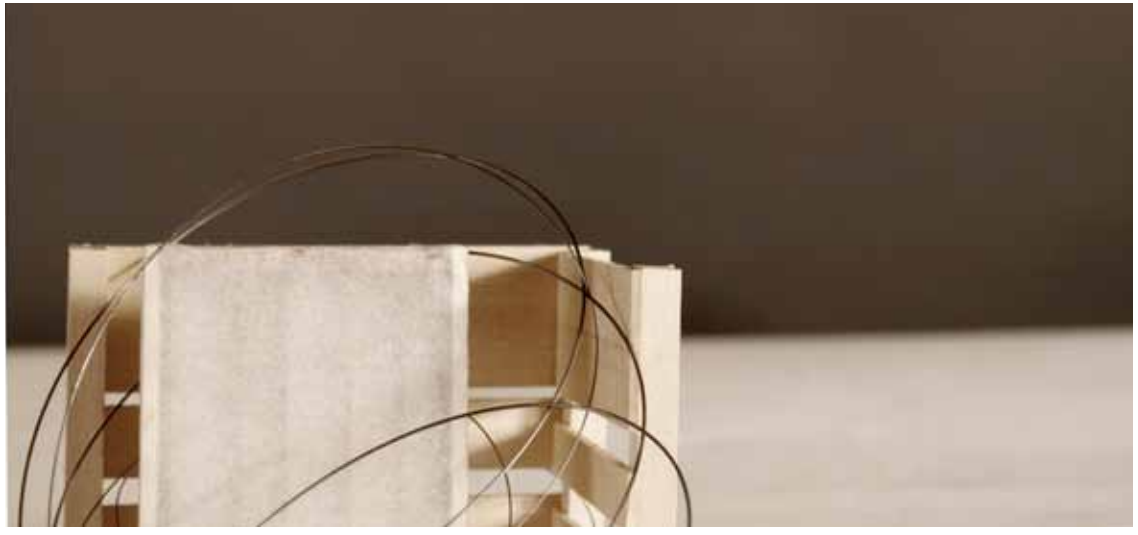
No Connection

A model illustrates the levels, connections and conditions of the existing structure. Consistent with diagramming in this stage, the model focuses on the addition and not the warehouse portion.





Design Development



Conceptual Design Development

Models primarily drove the conceptual design development process. Initial questions were asked and models were built to address these questions. A key to the process was taking the model and not allowing the model to answer the initial question but ask a new question. This process led to a deeper understanding and richer design.

Research and case studies led to early decisions and an initial starting point. There were three distinct spaces needed for this residential facility: group therapy, individual therapy, and solitude spaces. Therefore conceptual models began asking questions of these three distinct spaces.

Are the three different spaces located within one another or adjacent to one another?

Are the haptic qualities and materiality of the spaces different or identical?

Does form distinguish between spaces?

If the spaces are within one another, what is the visibility between them?

If the innermost space is the solitude space and subsequently connected to the individual therapy space, what is the connection between the group space and solitude space?

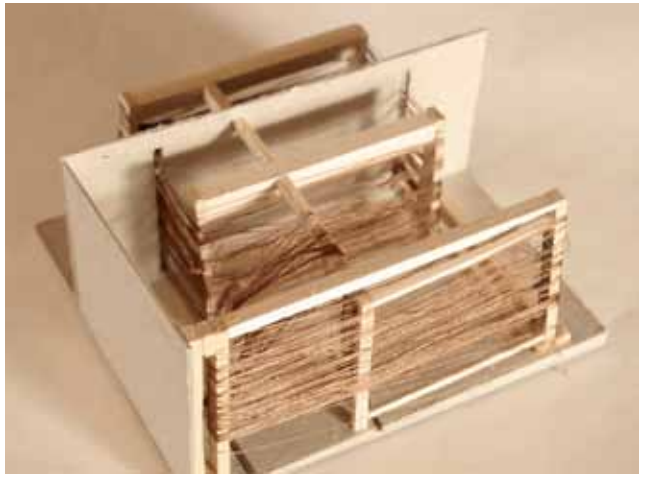
If the three distinct spaces become separate, and are no longer within one another, what form does the connector take on?

Is there one connector or many?

How does the connector influence the structure?

How does the structure change for the connector or the connector for the structure?

How might the structure support the connector or does the connector support the structure?

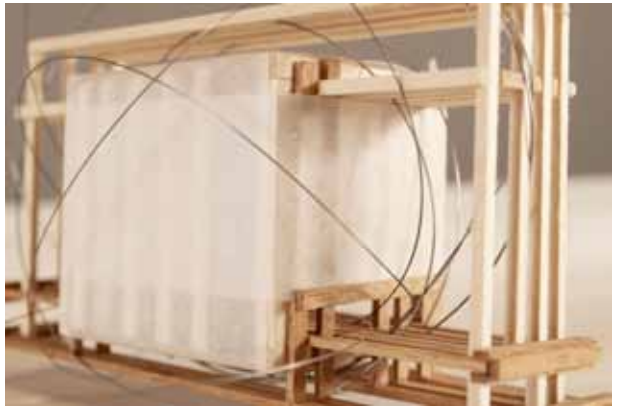


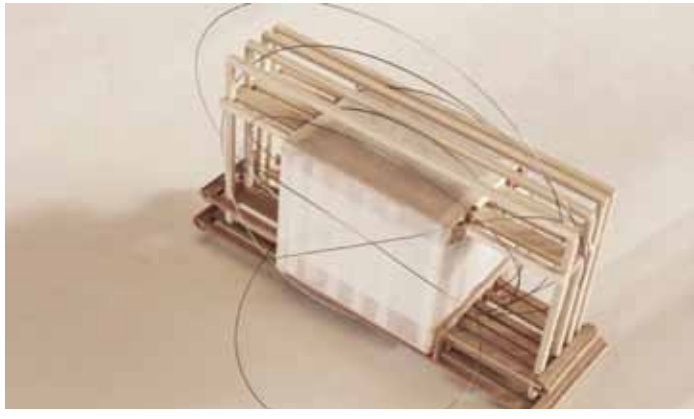
If the structure is affected by the connector, how can this be designed purposefully?

How can the connector be connected to circulation of space? Is there a common element between these two ideas?

Rather than having three distinct spaces connected by a specific unit, how might the spaces be separate from yet still connected to one another?

If the spaces exist on their own yet within one another, what is the function of the connector?



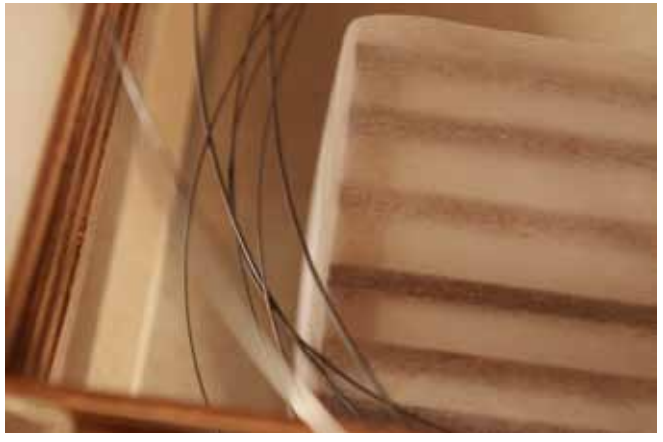


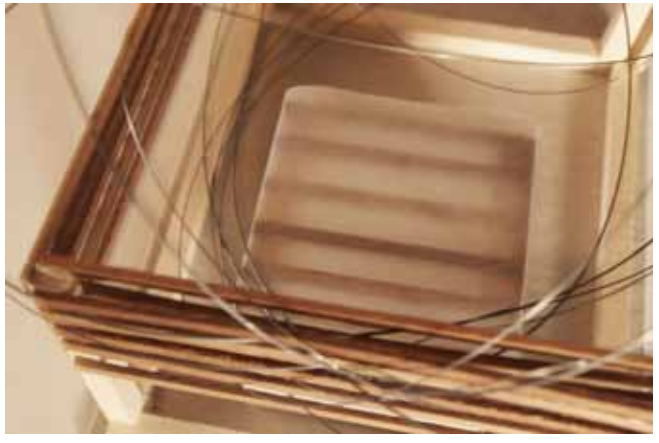
What materiality has remained constant at this stage of the conceptual development process? Should this materiality have remained constant?

How does the materiality speak to the nature of the space?

How does one flow between spaces? What is the experience of traveling from one space to the next?

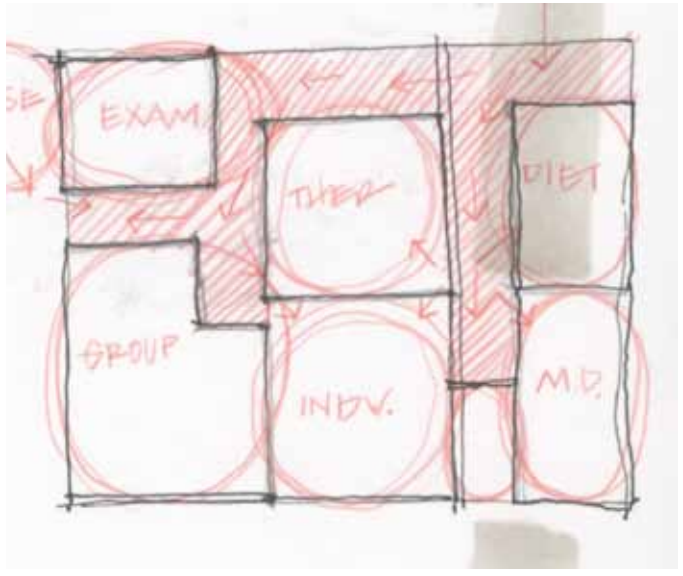
What makes a space feel solid and what makes a space feel transparent?





Programmatic Design Development

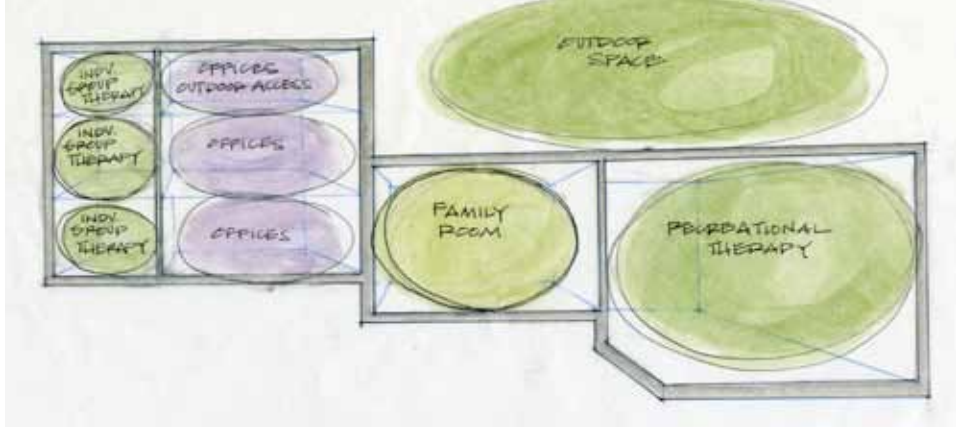
Through programmatic analysis and discoveries at La Tourette the decision was made to change the nature of the three distinct spaces: group interaction (non-therapeutic), therapeutic space, and solitude space. The following pages document the programmatic design development.

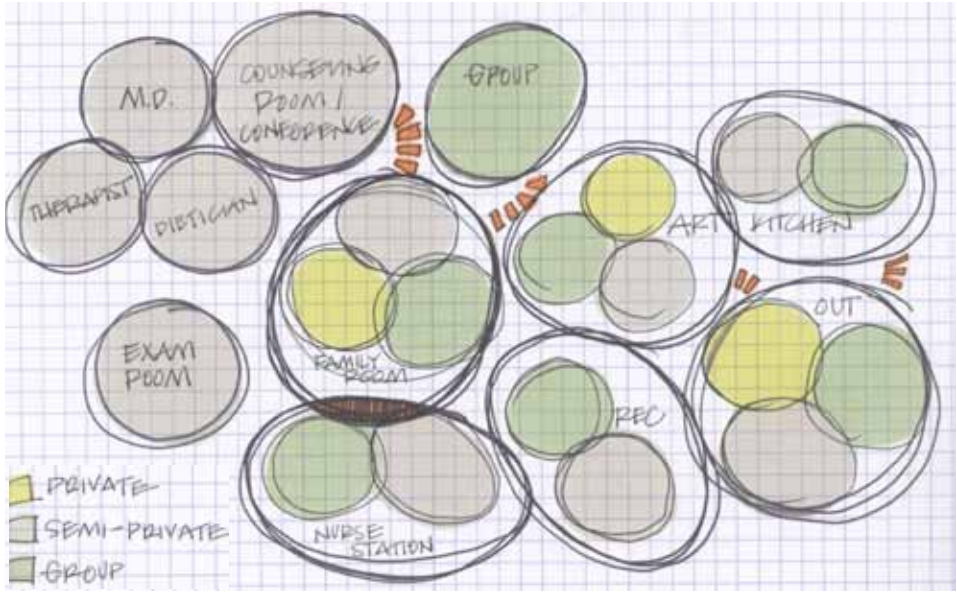


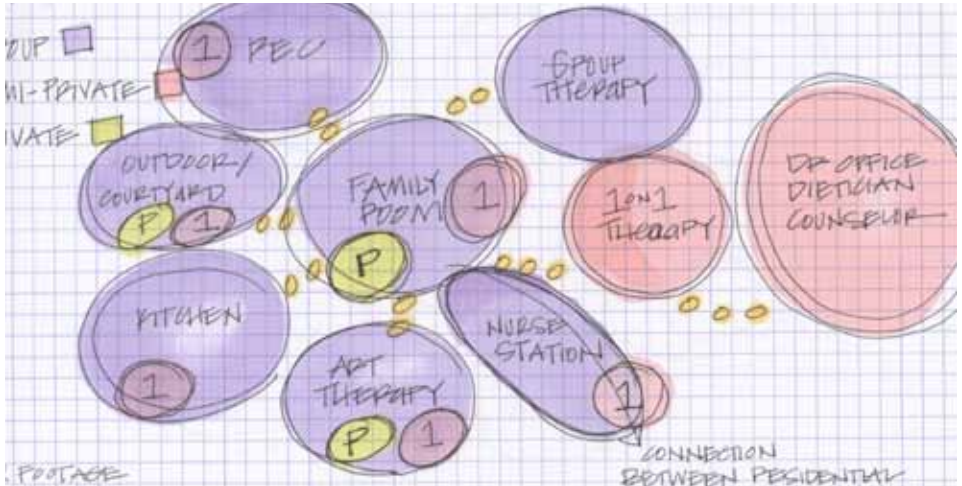
Adjacency Matrix	Square Footage Requirements	Major Adjacencies	Unwanted Adjacencies	Spatial Type	Sound-Proofing Needed	Public Access	Notes
01 Family Room	400-500	02	17	G/S	N	N	Space must be flexible
02 Nurse Station	250	01/03		A	N	Y	Secure space (medication/records)
03 Exam Room	150	02		T	Y	N	
04 Recreational Therapy	300			T	Y	Y	Climbing wall/half court basketball
05 Art Therapy	400-500		17	T	Y	Y	Plumbing/Storage for each resident
06 Classroom	250		17	G	N	Y	Storage for each resident
07 Dining Room	250	17	01	G	N	N	Family style dining
08 Family Dining/Therapy	250	17		G/T	Y	Y	Flexible (eating and therapy)
09 Administrative	1500		01	A	N	Y	Secure boundary needed
10 Individual Therapy	150	12-14	01/17	T	Y	N	
11 Group Therapy	250	12-14	01/17	T	Y	N	Flexibility for multiple group size
12 M.D. Office	150	13-14	01	A/T	Y	N	
13 Therapist Office	150	12/14	01	A/T	Y	N	Space for staff to connect/discuss each client's case
14 Dietician Office	150	12-13	01	A/T	Y	N	
15 Outdoor Space	400-500			G/S	N	Y	Space for gardening
16 Restrooms	200						
17 Kitchen	500	07/08	01	A	N	N	

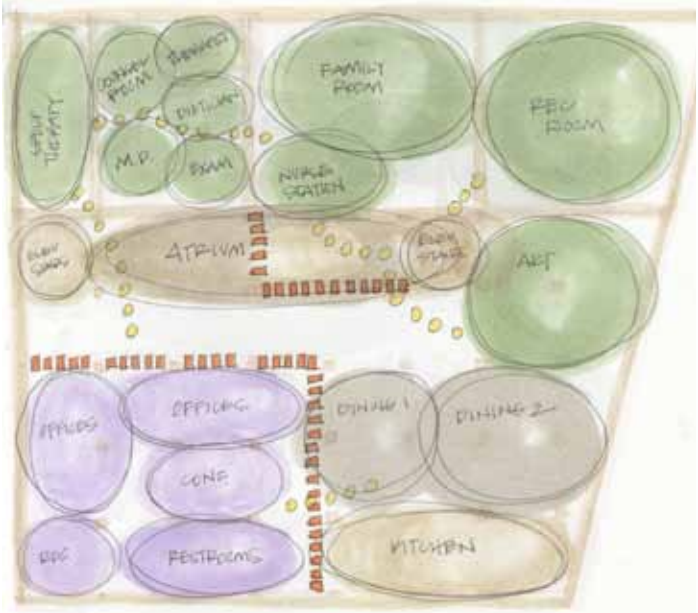
Spatial Type Key

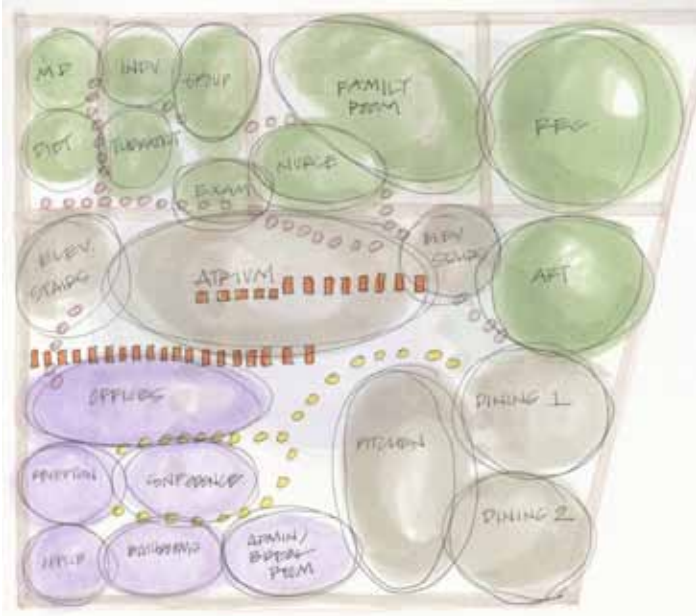
G - Group/Interactive Space
T - Therapeutic Space
S - Solitude Space
A - Administrative Space



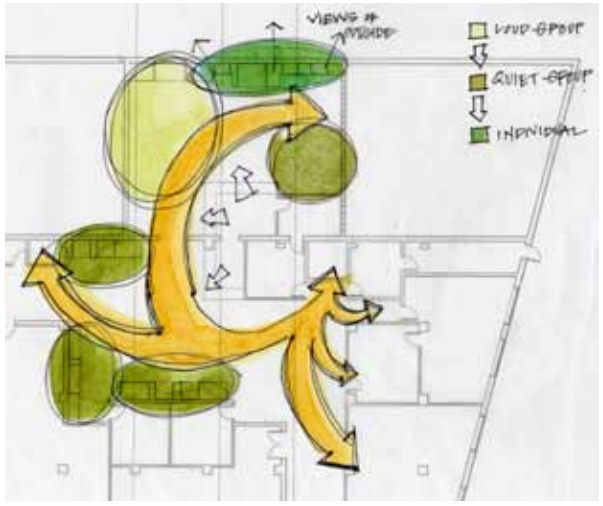


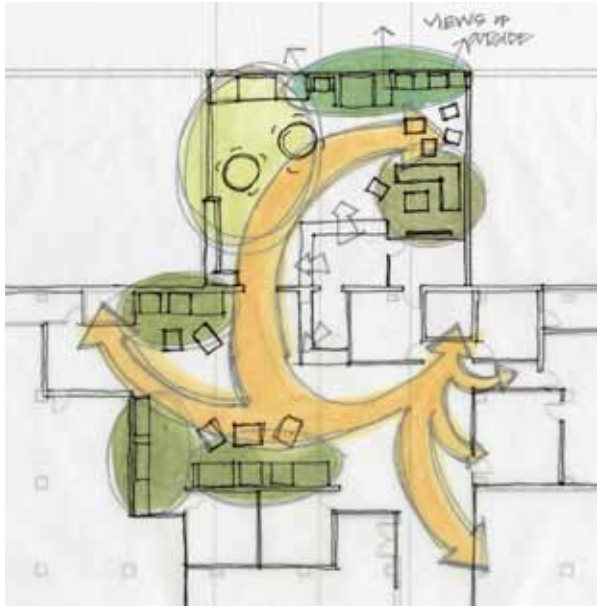


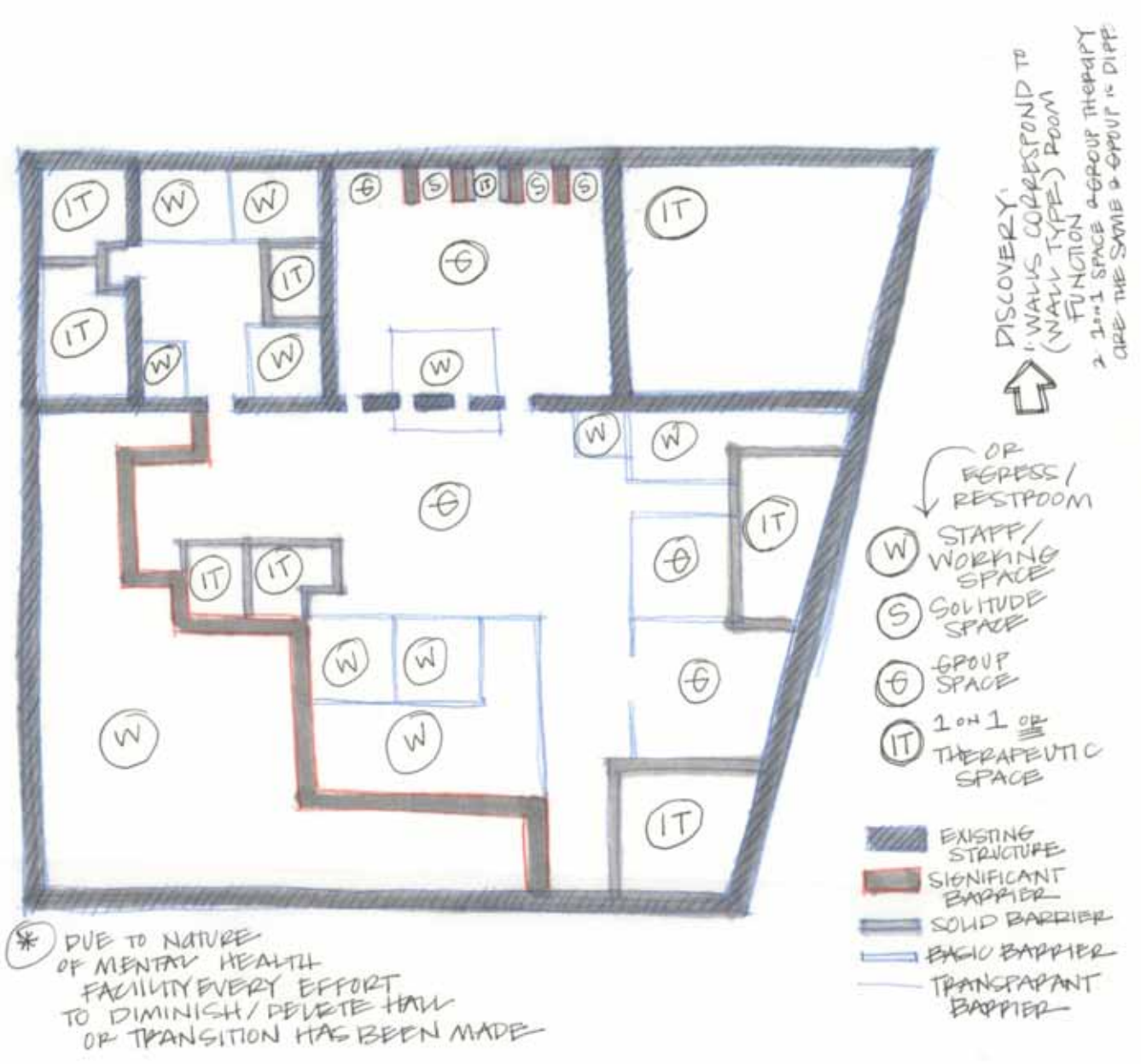


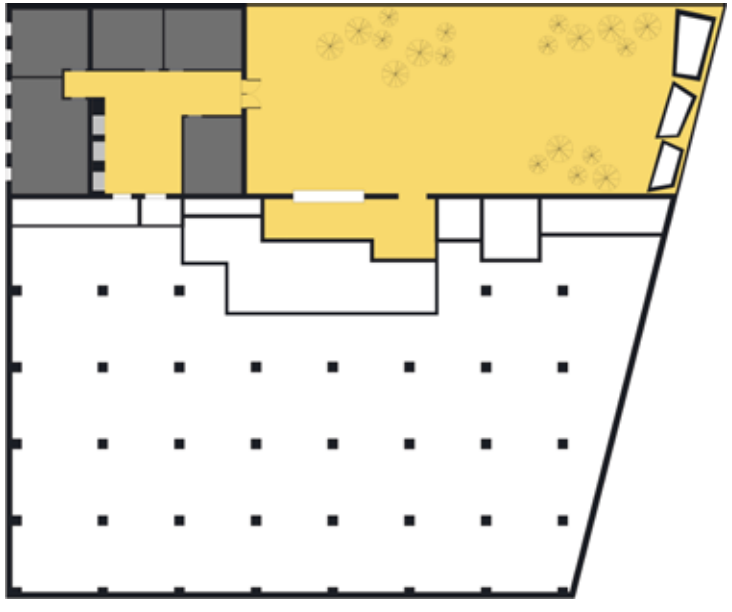


Relationship diagrams


VIEWS OF NATURE
MOD-GROUP
QUIET-GROUP
INDIVIDUAL


VIEWS OF NATURE


DISCOVERY
1 WALLS CORRESPOND TO (WALL TYPE) ROOM FUNCTION
2 1:1 SPACE & GROUP THERAPY ARE THE SAME & GROUP IS DIFF
OR EGRESS / RESTROOM
W STAFF / WORKING SPACE
S SOLITUDE SPACE
G GROUP SPACE
IT 1 ON 1 OR THERAPEUTIC SPACE
EXISTING STRUCTURE
SIGNIFICANT BARRIER
SOLID BARRIER
BASIC BARRIER
TRANSPARANT BARRIER
* DUE TO NATURE OF MENTAL HEALTH FACILITY EVERY EFFORT TO DIMINISH / DELETE HALL OR TRANSITION HAS BEEN MADE

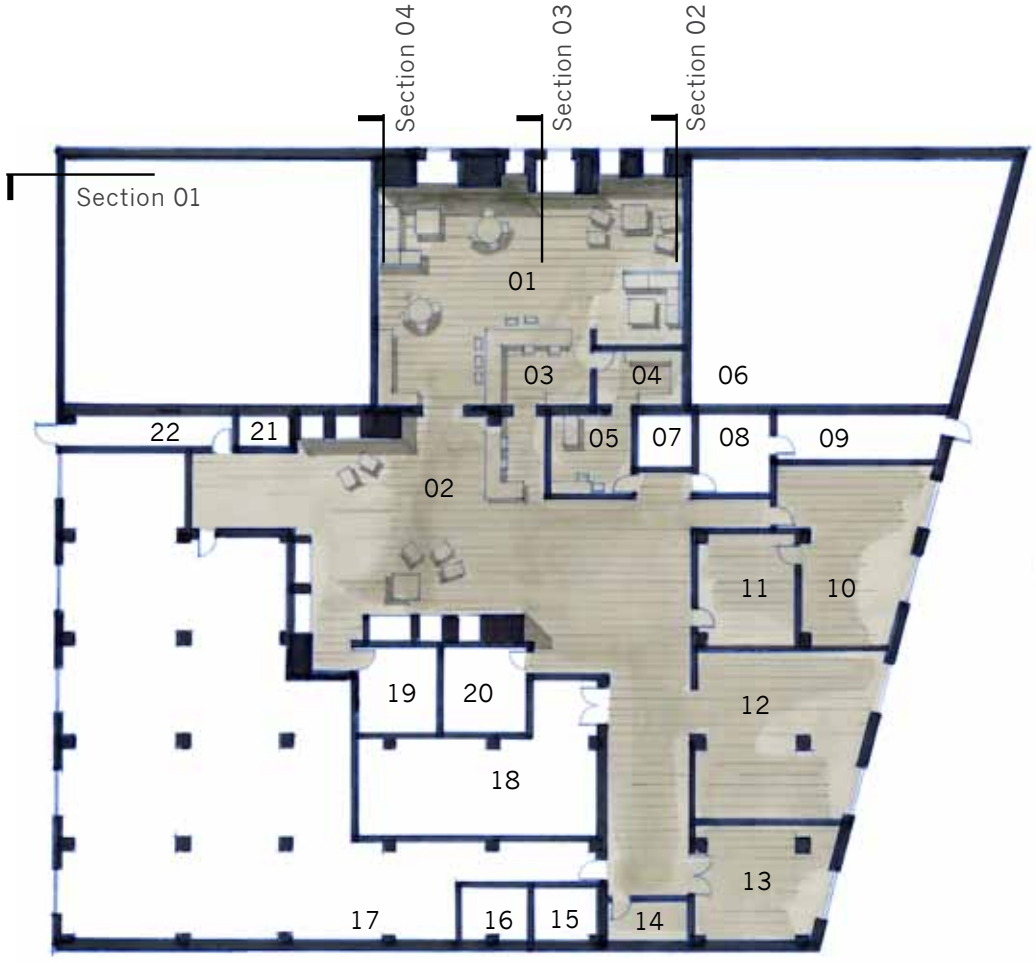


Privacy, security, and circulation were key programmatic considerations. Therefore, design decisions were based on providing a sense of emotional safety for residents. Three distinct spaces were identified: group interaction, therapeutic, and solitude spaces. These three spaces became the conceptual drivers for the development of space plans.

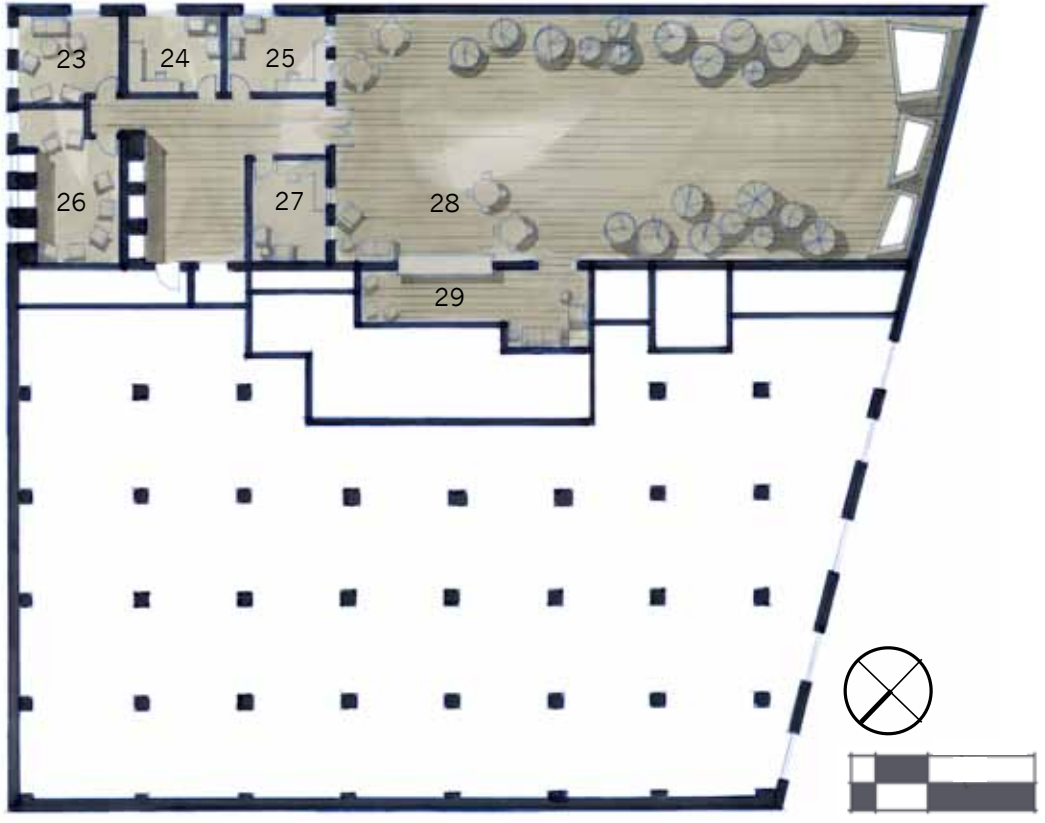
Group Interaction

Therapeutic

Solitude



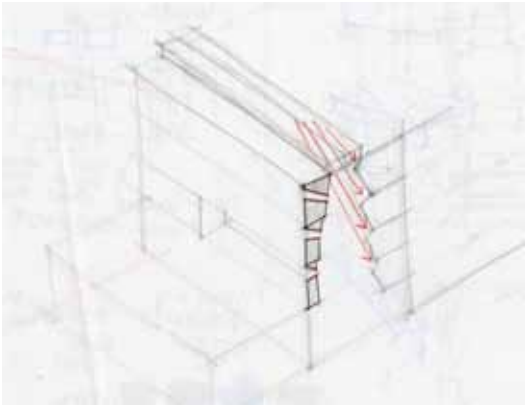
Ground Floor

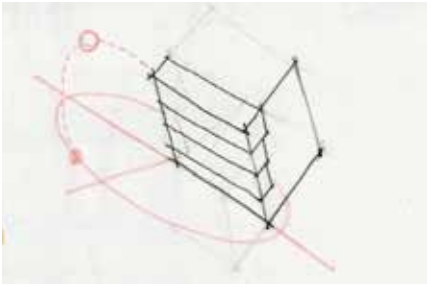


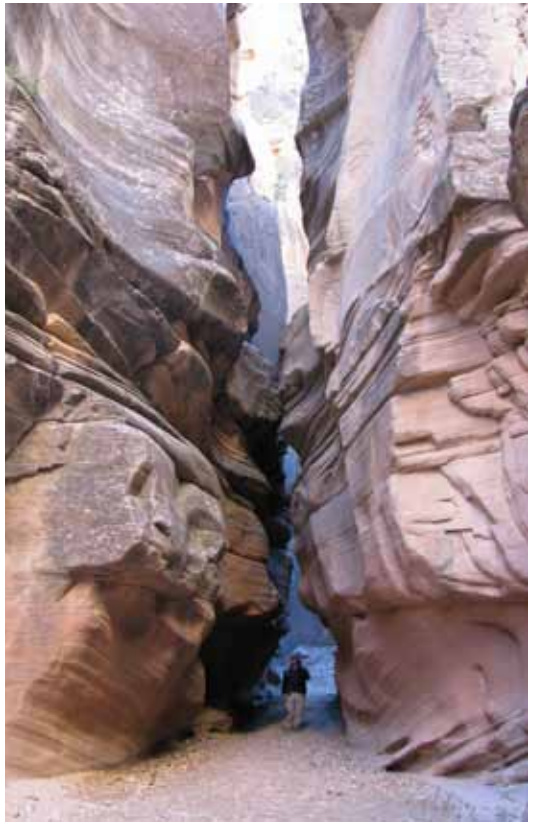
Second Floor Therapy/Roof Floor

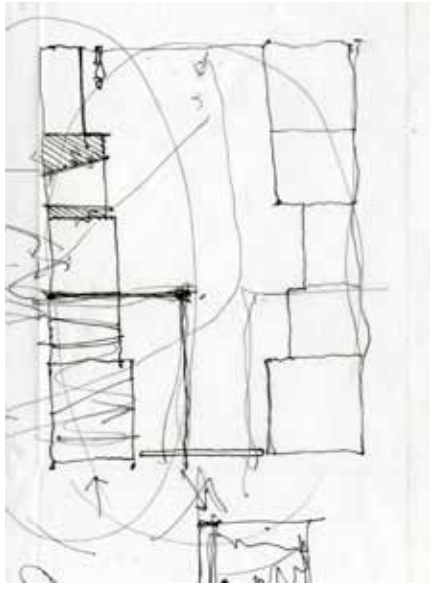
01 Family Room
02 Indoor Courtyard/Canyon
03 Nurse Station
04 Secure Records/Medication
05 Exam Room
06 Recreational Therapy
07 Elevator
08 Stairwell
09 Emergency Exit
10 Art Therapy
11 Classroom
12 Dining Room
13 Family Dining/Therapy
14 Storage
15 Family Restroom
16 Family Restroom
17 Administrative
18 Kitchen
19 Resident Restroom
20 Resident Restroom
21 Elevator
22 Stairs/Emergency Exit
23 Individual Therapy
24 Therapist Office
25 Dietician Office
26 Group Therapy
27 M.D. Office
28 Outdoor Courtyard
29 Covered Outdoor Courtyard

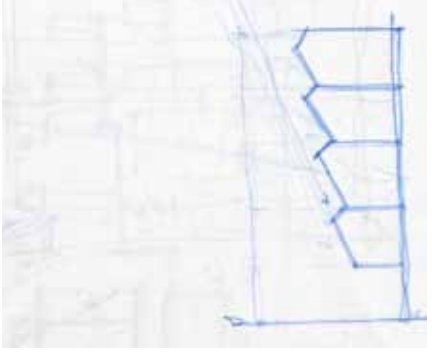
Current research acknowledges the importance of natural light in the treatment of eating disorders. The body's circadian rhythms are governed by both eating and the body's regulation to natural light cycles. Therefore, merely admitting natural light into the space was not enough; a sense of awareness to the time of day became a critical design consideration. The design solution to this opportunity was to create a "canyon" in the central heart of the clinic. This canyon not only will admit natural light and air flow, it will create an awareness to the time of day and it's light quality, providing an opportunity for residents' circadian rhythms to become regulated. The intent is that this regulation will increase residents' quality of care and overall healing process.

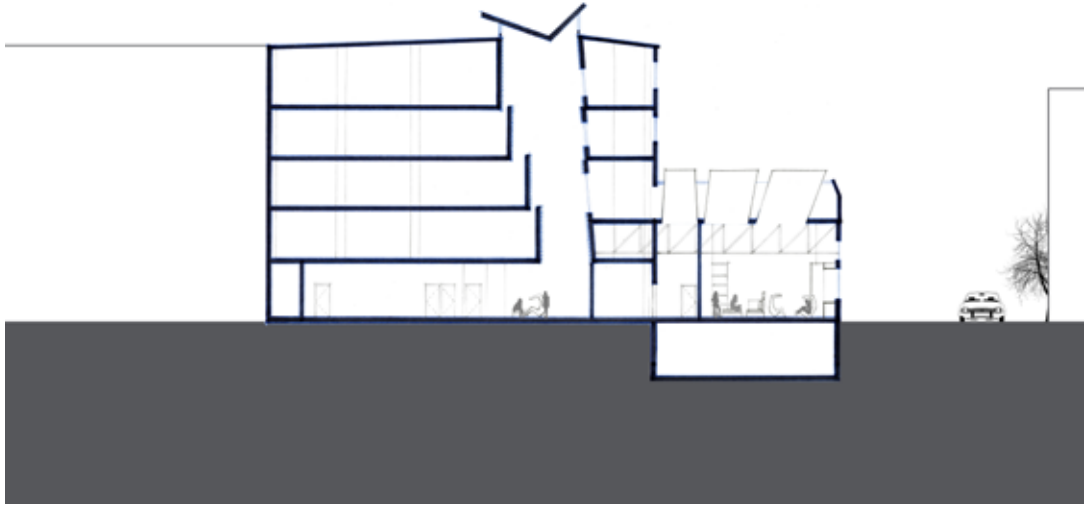




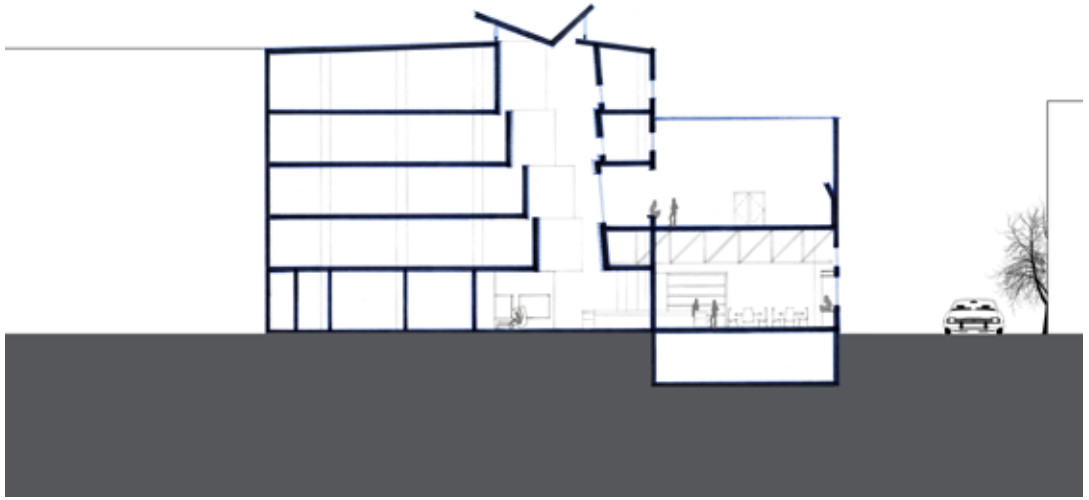




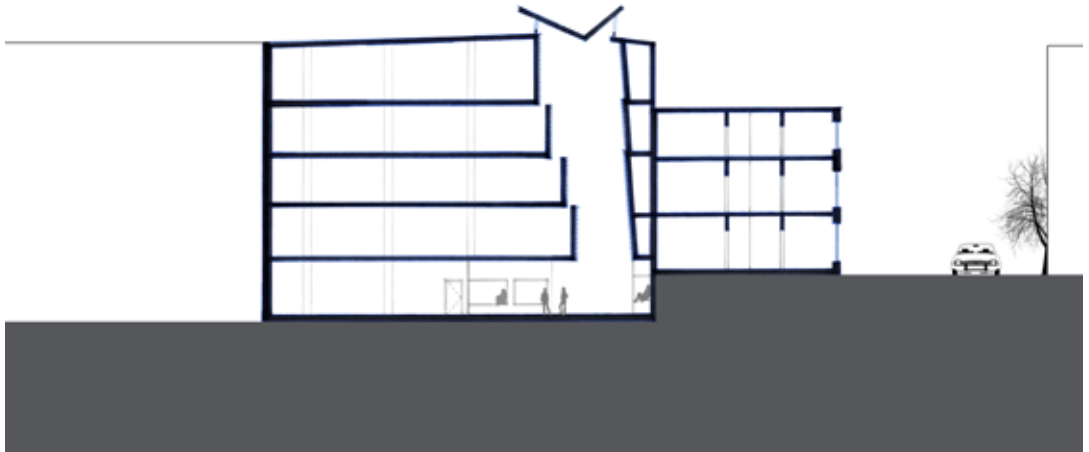




Section 02

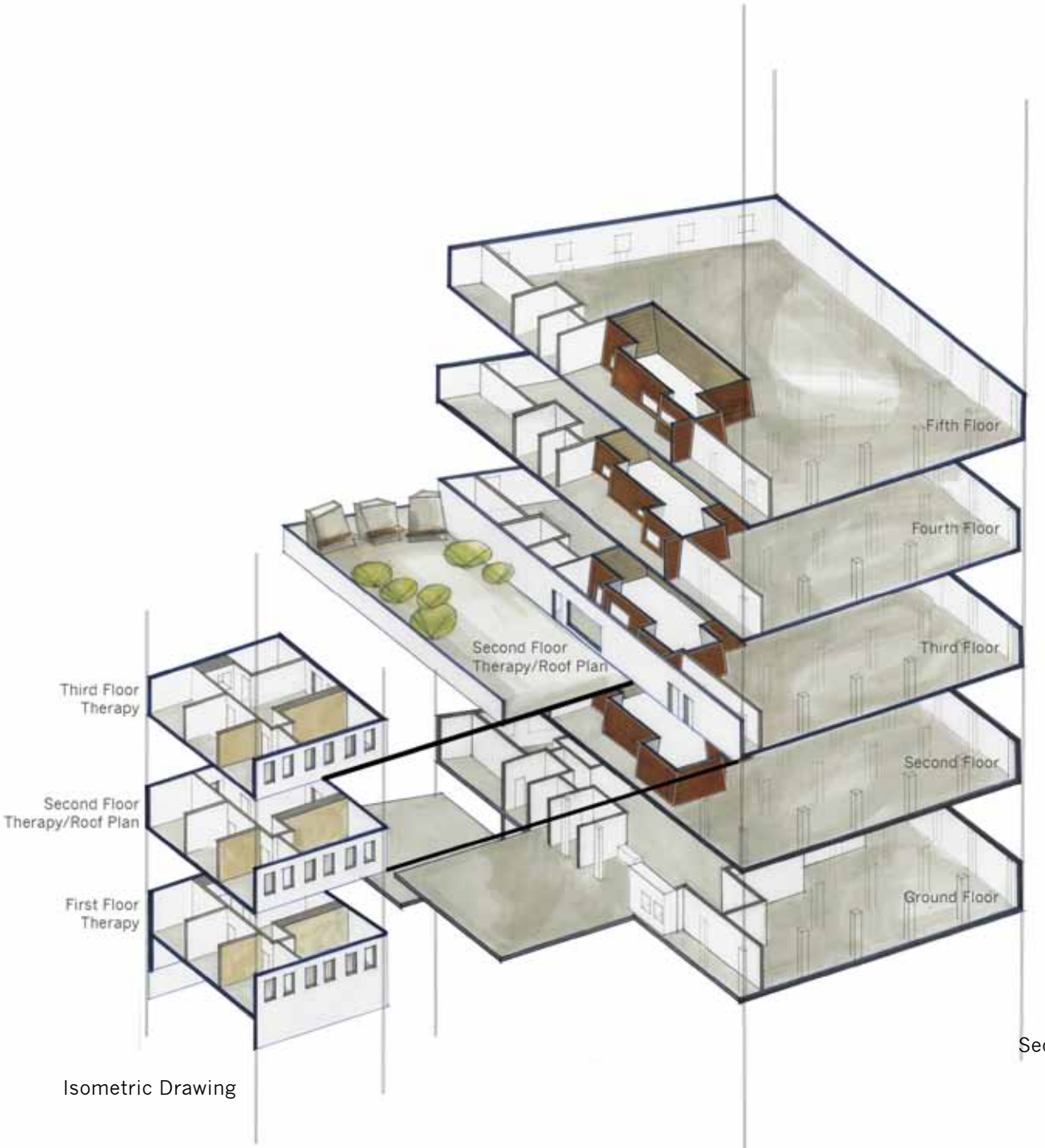


Section 03

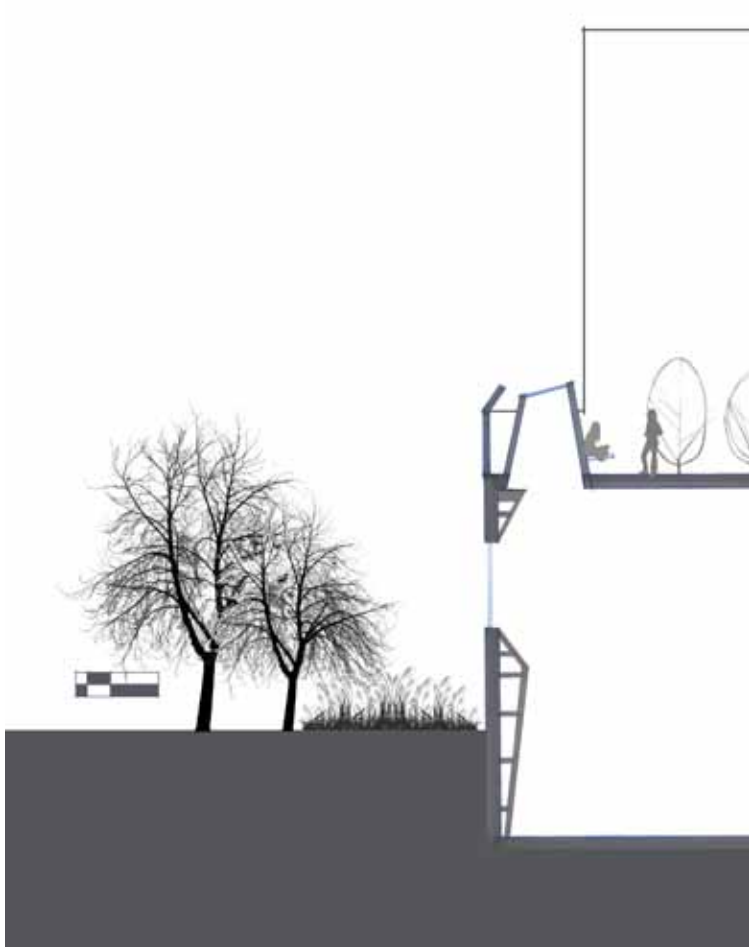


Section 04

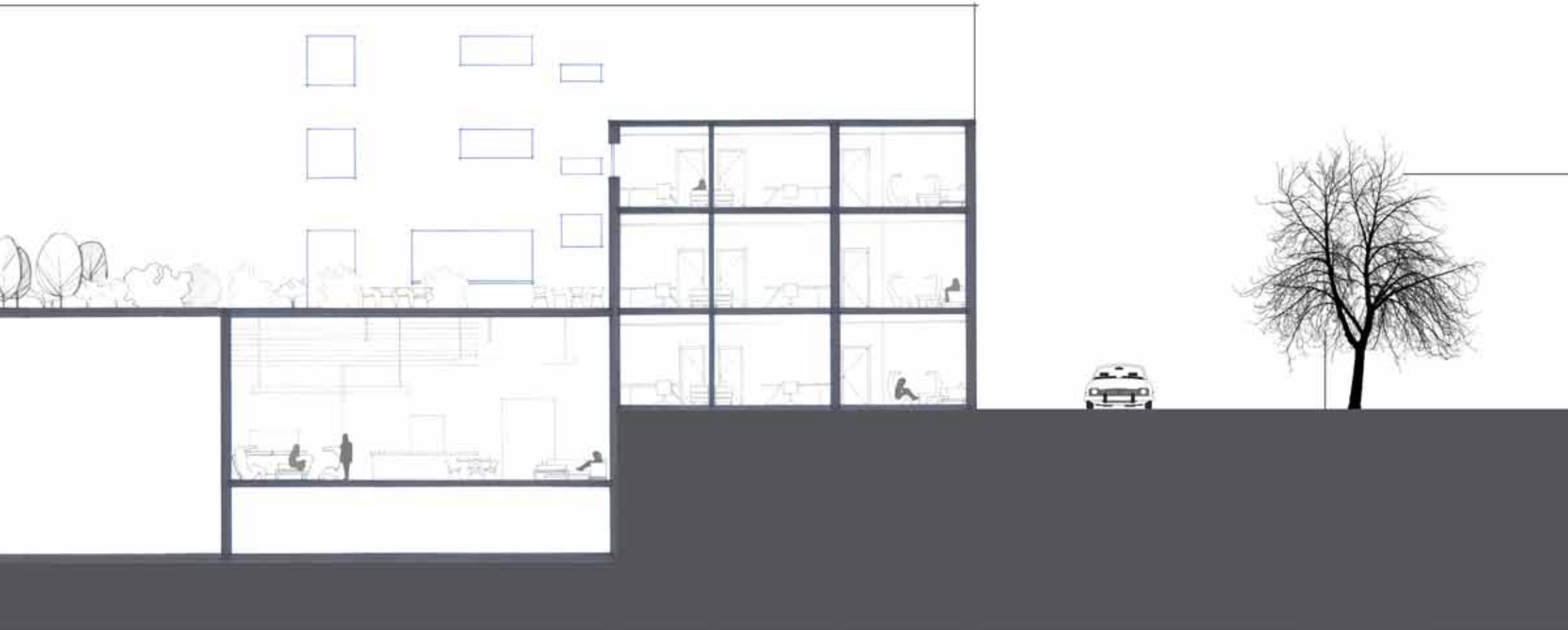
Renderings illustrating light qualities of the indoor courtyard/ canyon, from left to right: morning, afternoon, early evening.



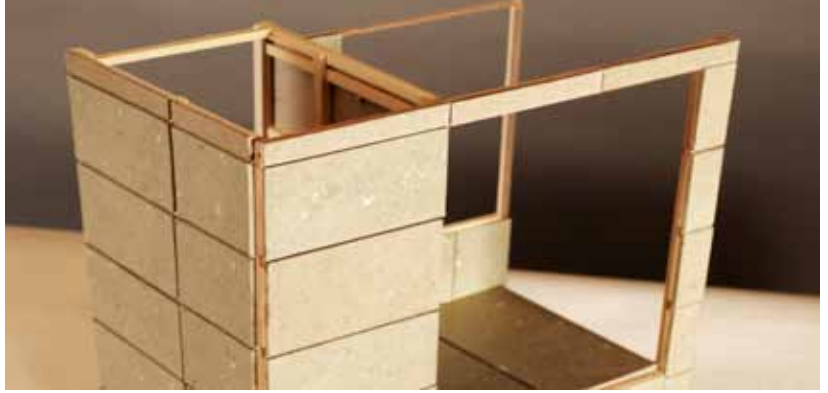
Isometric Drawing

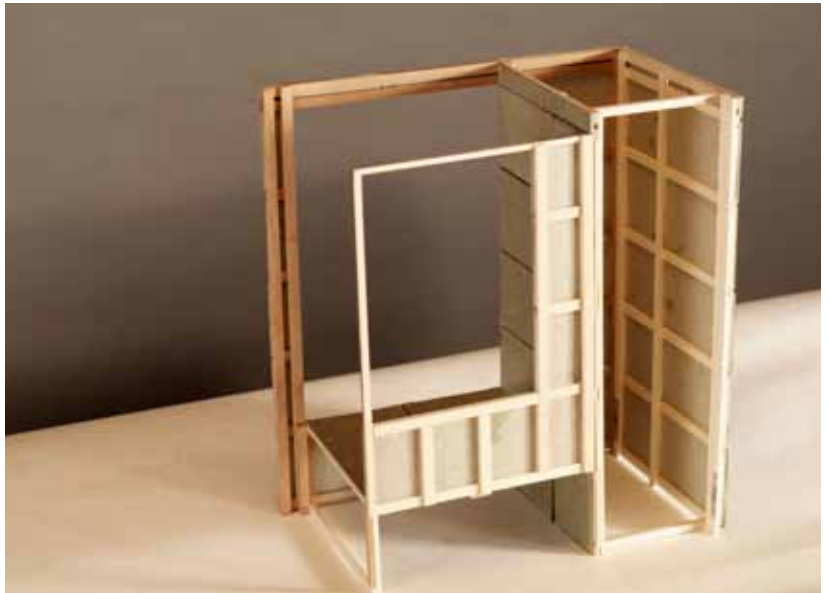


Section 01

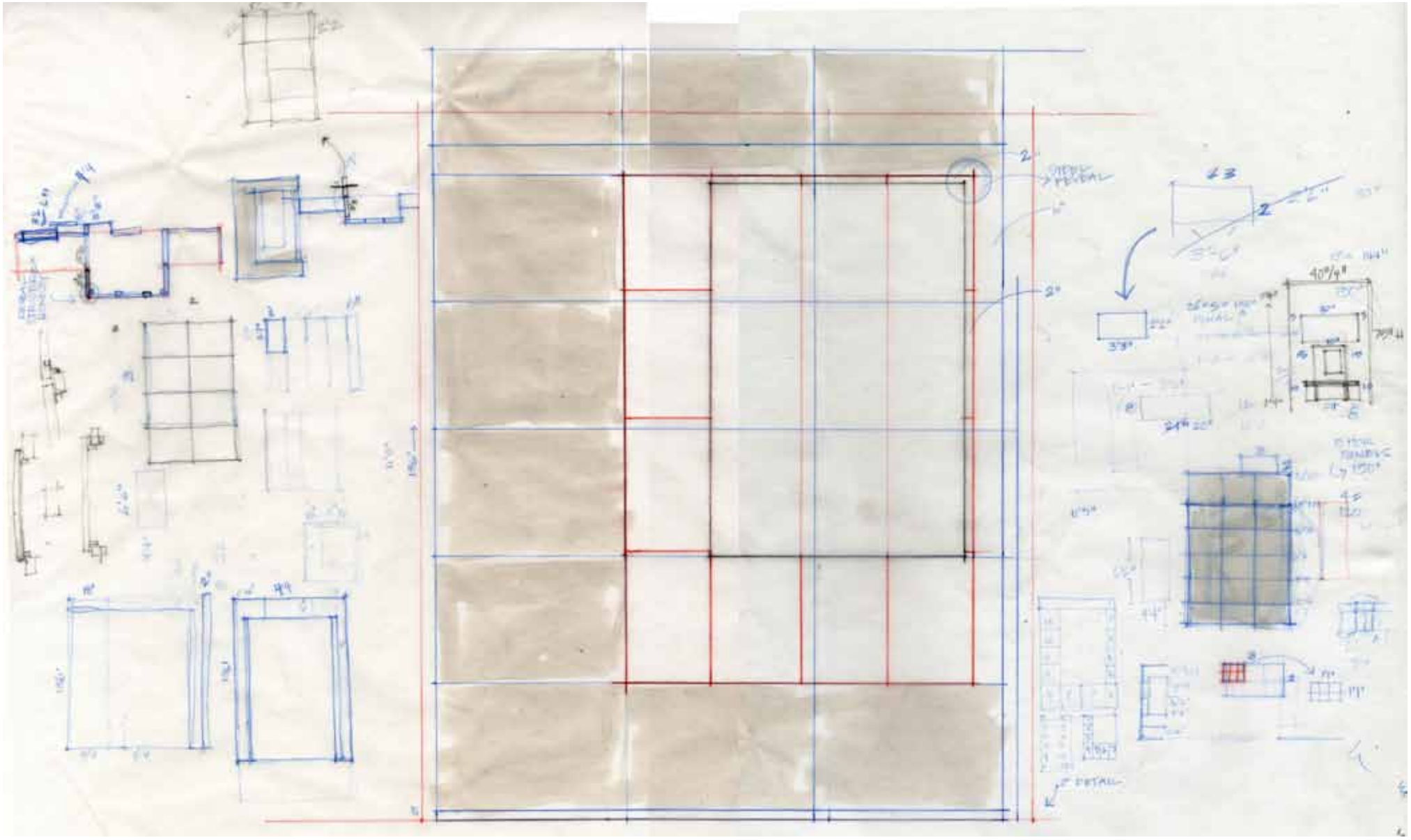


Detail model of window seat





Window seats address the need for residents to have moments of solitude and reflection while remaining fully visible for safety reasons. During my research trip to France, I encountered an experience that spoke directly to this need. One night when I went out for dinner, I found myself in a packed bar; I happened to walk in during a major rugby game. At the end of a long day I longed for a moment of anonymity and time for reflection. Within the bar were two and a half foot deep window seats. In I crawled to eat my dinner, have my drink and reflect on my day. As I sat in a bar so packed you couldn't walk through without bumping into several people, I felt alone and secluded. This experience is what I strove to achieve in the design of these window seats. The window seats would be constructed of concrete panels attached to a steel frame. The proportions of each panel are based on the golden ratio. This proportion will create a restful, safe feeling encouraging reflective activities. The concrete finish would be smooth, emulating the quality of Ando's concrete. Additionally the concrete would be heated addressing the need for a warm atmosphere for the clients.

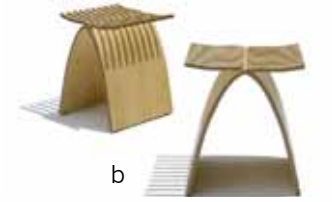


Sketch of detail process

FF&E and Material Selection

Perspective of Indoor Courtyard/Canyon

a



b

c

d

e

Perspective of Family Room

Color Scheme

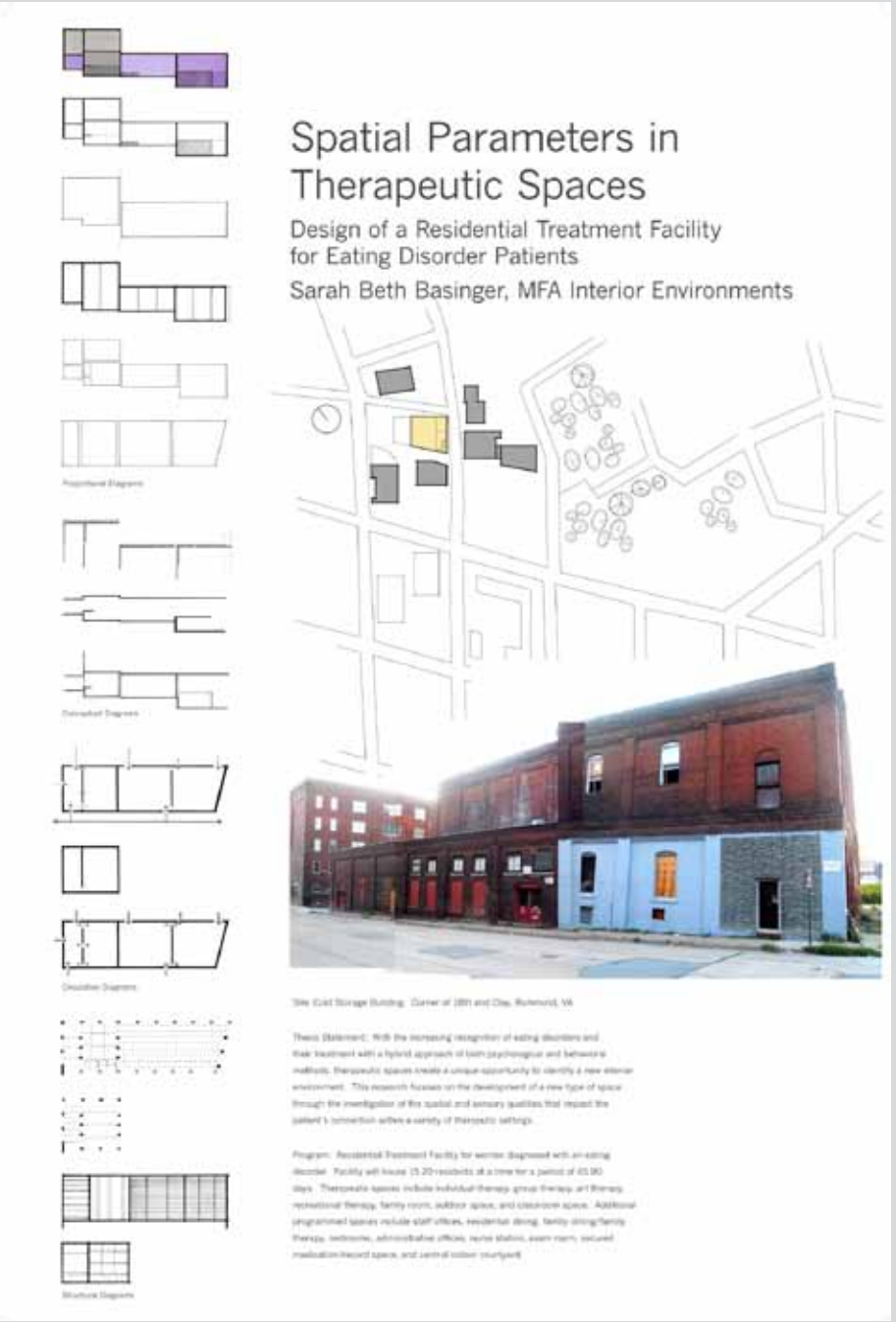
a. Amoebe Highback Chair, Vitra
b. Capelli Stools, Herman Miller
c. Suita Sofa, Vitra
d. Eames Molded Plywood Chair, Herman Miller
e. Eames Table, Herman Miller

Pictured here are different color schemes used throughout the facility. Color schemes were chosen by taking magazines and cutting out swatches from photo spreads. This method was chosen due to vibrancy of color and creative textures featured in editorial spreads.

Perspective of Group Therapy Room

Perspective of Individual Therapy Room

Final massing model. Below left to right: light flooding inner courtyard/canyon and family room

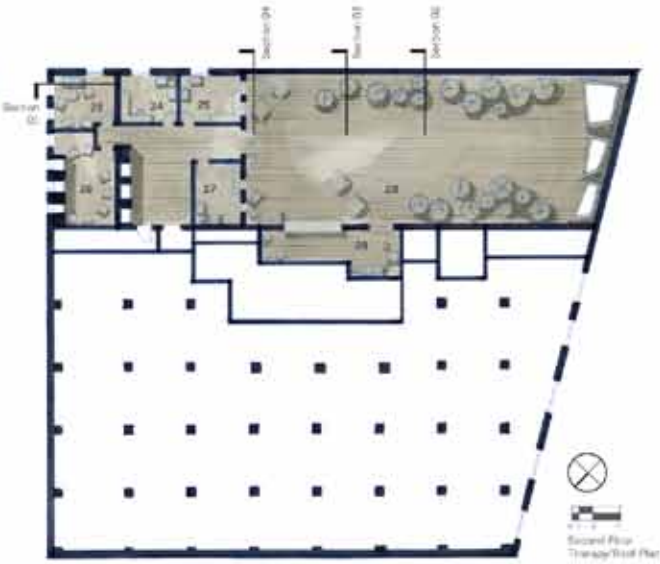


Exhibition Boards

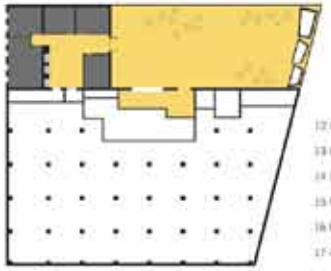
Ground Floor

Privacy, security, and circulation were key programmatic considerations. Therefore, design decisions were based on providing a sense of emotional safety for residents. Three distinct spaces were established: group interaction space, therapeutic space, and solitude spaces. These three spaces became the conceptual drivers for the development of space plans.

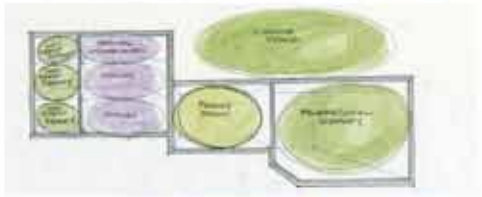
- Group Interaction Space
- Therapeutic Space
- Solitude Space



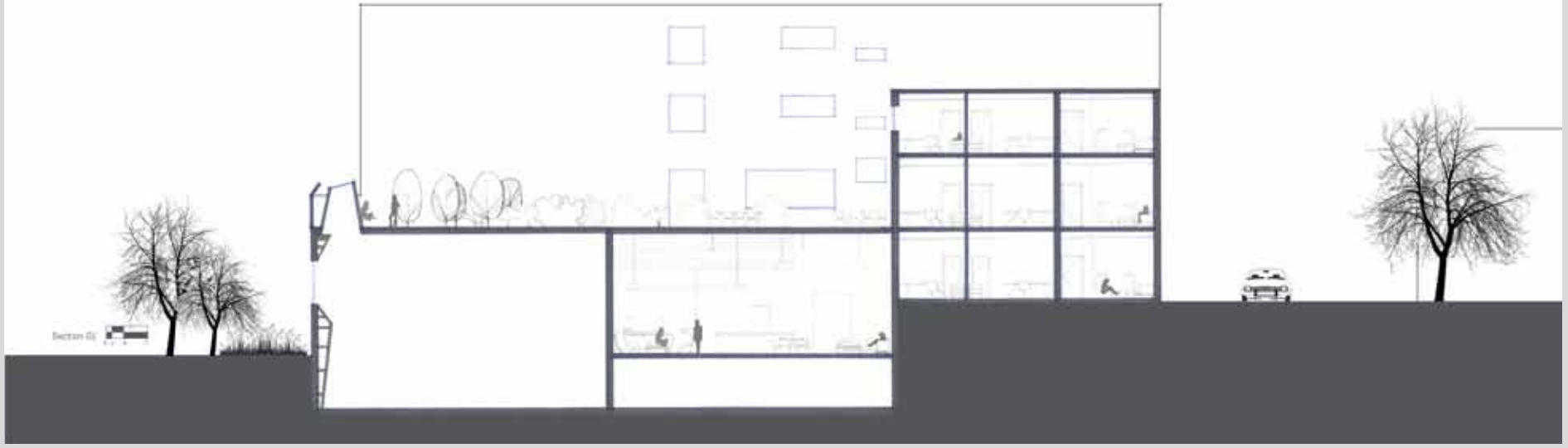
Second Floor
Therapy/Staff Plan

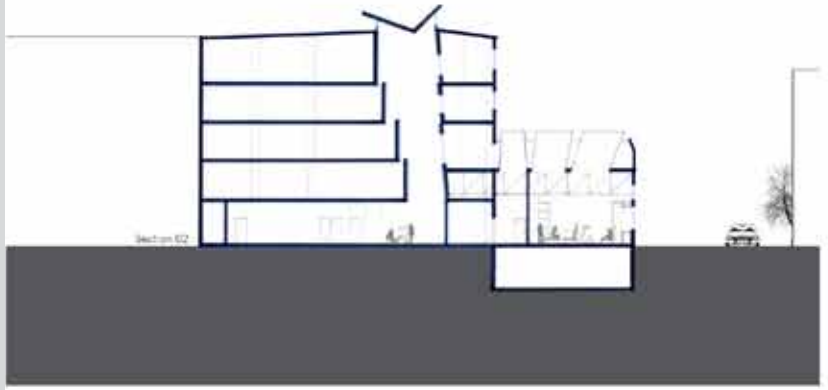


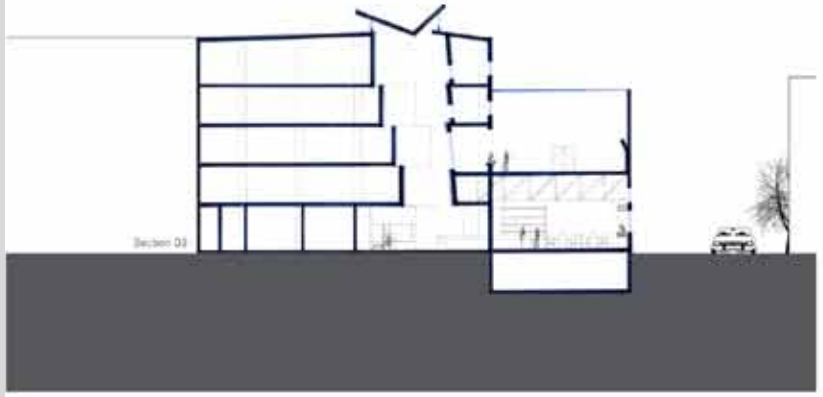
01 Family Room
02 Indoor Courtyard/Cloyne
03 Nurse Station
04 Secure Records/Medication
05 Exam Room
06 Recreational Therapy
07 Elevator
08 Stairwell
09 Emergency Exit
10 Art Therapy
11 Classroom
12 Group Room
13 Family Dining/Therapy
14 Storage
15 Family Restroom
16 Family Restroom
17 Administrative
18 Kitchen
19 Medical Restroom
20 Resident Restroom
21 Elevator
22 Stairs/Emergency Exit
23 Individual Therapy
24 Therapist Office
25 Clerician Office
26 Group Therapy
27 M.D. Office
28 Outdoor Courtyard
29 Covered Outdoor Courtyard

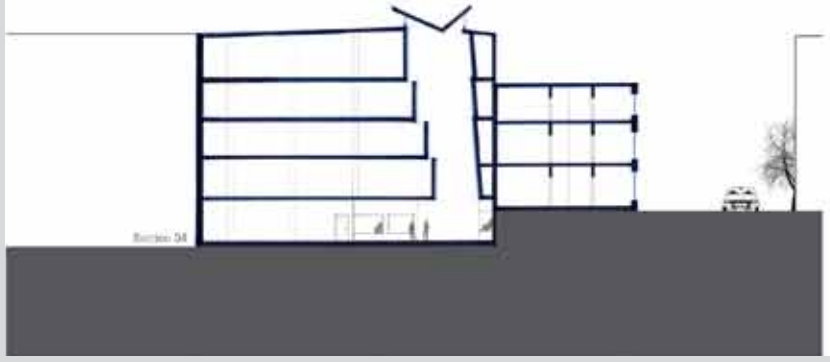


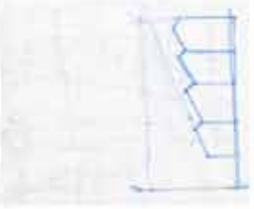
Due to the order of construction on the cold storage building, many levels existed. Design of level connections and circulation flow became critical. Rather than hide the characteristic of the original structure's varying levels, the decision was made to highlight and celebrate these variations. Therefore, any time there is a moment for self-reflection a step or movement upward is created. To enter into traditional therapeutic rooms, one has to "go up" to another level. Additionally many "window seats" are designed at a higher level than a typical seat, creating again an upward momentum indicating space for introspective thinking.











Current research acknowledges the importance of natural light as the treatment of eating disorders. The body's circadian rhythms are governed by both eating and the body's regulation to natural light cycles. Therefore, merely admitting natural light into the space was not enough, a sense of awareness to the time of day became a critical design consideration. The design solution to this opportunity was to create a "canyon" in the central heart of the clinic. This canyon not only will admit natural light and air flow, it will create an awareness to the time of day and that time's light quality, providing an opportunity for resident's circadian rhythms to become regulated. This regulation will increase resident's quality of care and overall healing process.

These renderings illustrate the different light qualities of the space.
Beginning from left to right with morning, afternoon, and early evening.

Ground Floor Perspectives

Top: Family Room
Bottom: Central Courtyard/Canyon

Therapy Floor Two Perspectives

Top: Individual Therapy
Bottom: Group Therapy

Color studies created based on existing structure and haptic/sensory considerations

01 Capelli Stool
Family Room

02 Emu Heuwen Seating
Outdoor Courtyard

03 Emu Heuwen Table
Outdoor Courtyard

04 Arnoldia Chair
Multiple Locations

05 Suita Sofa
Multiple Locations

06 Swoop Chair
Group & Individual
Therapy Rooms

07 Eames Molded
Plywood Chair
Multiple Locations

“In memorable experiences of architecture

space, matter, & time fuse into one single dimension,
into the basic substance of being that penetrates the unconsciousness.

We identify ourselves with
this space,
this place,
this moment,
and these dimension as they become ingredients of our very existence.

Architecture is the art of meditation and reconciliation”

Pallasmaa

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